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Model State Information System Training Program. Volume II. Slide/Cassette Workbook for MSIS Subsystems

Cincinnati Univ, Ohio Southwestern Ohio Regional Computer Ctr

Prepared for

Environmental Protection Agency, Washington, D C

Jun 77

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Model State Information System Training Program

Volume II

Slide/Cassette Workbook

For

MSIS SUBSYSTEMS

Prepared for the

U.S. Environmental Protection Agency
Office of Water Supply
Washington, D.C. 20460
under GSA Contract No. GS-05S-10458
Task Assignment OWS-77-01

by the
SouthWestern Ohio Regional Computer Center
Cincinnati, Ohio
June, 1977

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The MSIS Subsystems slide/cassette course is one of four prepared by the Southwestern Ohio Regional Computer Center (SWORCC) for the Office of Drinking Water, U.S. Environmental Protection Agency, Washington, D.C.

The Subsystems slide/cassette course has a corresponding workbook, designed to aid persons learning about MSIS. This Workbook can be used in conjunction with the MSIS slide/cassettee Training Program or it can be used advantageously by itself as a learning or reference tool.

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Ellen G. Miller
Project Manager, OWS-77-01

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INTRODUCTION

This slide/cassette course on the Model State Information System (MSIS) is one of four prepared by the SouthWestern Ohio Regional Computer Center, Cincinnati, Ohio, for the Office of Water Supply, U.S. Environmental Protection Agency, Washington, D.C. The four slide/cassette courses are:

- Volume I - MSIS Overview
- Volume II - MSIS Subsystems
- Volume III - Data Entry
- Volume IV - Selection Process

Each slide/cassette course has a corresponding workbook, designed to aid persons learning about MSIS. This workbook can be used in conjunction with the MSIS Slide/Cassette Training Program or it can be used advantageously by itself as a learning or reference tool. Conscientious application of the material contained herein will result in a deeper knowledge of the entire MSIS program.

Before beginning the slide/cassette presentation, please turn to the Instructions for Users and read the directions to facilitate optimum utilization of the slide/cassette teaching device.

NOTES

INSTRUCTIONS TO USER

The design of this Model State Information System (MSIS) Slide/ Cassette Training Program assumes that each viewer has in his possession and will use the workbook which corresponds to the volume indicated by the slide/cassette package. This workbook is intended to serve as a learning aide and, later, as a reference tool. These instruciton should be read in order to derive maximum benefit from this workbook.

The Individual Unit Material is a storybook version of all material contained on the slide/cassette presentation. Information contained on the cassette tape is duplicated verbatim in the textual portion of the individual unit material. The corresponding slide is duplicated to allow a visual facsimile of the slide presentation. Therefore, as a reference tool, the entire slide/ cassette presentation can be reviewed in great detail.

The Pre-Test is to be completed prior to using the slide/cassette devices. It is designed to measure the viewer's individual knowledge of MSIS before exposure to the information contained in this presentation. Upon completion of the Pre-Test, the viewer is to turn on the slide projector and accompanying cassette tape player and proceed with the training course.

Bring up the first slide on the screen; then start the recorder.

Instructions concerning the Exercises are contained in both the slide/cassette presentation and the corresponding workbook. The phrase "STOP TAPE...COMPLETE REVIEW/EXERCISES" indicates that it is time to measure the viewer's comprehension of material previously presented. The slide immediately following will refer the viewer to the specific exercise corresponding to the material covered. The exercises are placed in the workbook in their order of occurrance, but the viewer is responsible for matching the number appearing on the screen with that appearing in the upper right-hand corner of the exercise.

The Exercises are designed to be self-evaluating and should be used accordingly. The viewer should turn the slide projector and cassette tape player off, complete the appropriate exercise(s), compare his/her answers to the corresponding answer sheet provided in this workbook, and judge accordingly whether the information was successfully transferred or if it should be reviewed for a more complete understanding.

The Glossary will serve as a quick reference for words unfamiliar to the viewer. Words which have particular reference to the Model State Information System and whose meaning in this context may vary from the common definition are listed in the Glossary. Because the Glossary provides a concise list of terms pertinent to the data processing field and, more specifically, MSIS, it is advisable for the viewer to read through the words and their definitions at some point during the training period. The amount of exposure necessary for a complete understanding of terms will depend upon the viewer's individual previous familiarity with data processing and MSIS terminology.

The Acronym portion of this workbook lists all abbreviations formed by combining initial letters which occur in this course's content. Because the Model State Information System is itself commonly referred to as an acronym (ie., MSIS) it is imperative that the viewer of this slide/cassette program become familiar with and study the abbreviations listed here. They are all explained in detail during the training course, but only by repeated exposure and examination will the trainee recognize the acronyms commonly used in connection with the MSIS.

Extracts from MSIS Documents consist of selected system documentation, relevant Environmental Protection Agency publications, reports generated by system runs, and any other information deemed necessary to aid further understanding and to provide background information on the contents contained in this slide/cassette course presentation.

Upon successful completion of material covered on a slide/cassette tray, the viewer will be informed that the current portion is over by a slide which directs him/her to "CHANGE SLIDE TRAY AND AUDIO CASSETTE". It will be followed by a blank slide. At this time, the viewer will replace the slide tray and corresponding audio cassette tape with the next sequentially designated slide/cassette presentation and continue the training course. The slide/cassette presentation is not complete until the viewer encounters an "END OF VOLUME" slide. At this point, the viewer should turn off the slide projector and audio device, complete the Post-Test referenced during the later portion of the presentation, and compare the Post-Test to the Pre-Test to evaluate the amount of specific knowledge which was obtained during this training presentation.

It is the intention of this MSIS slide/cassette training program not only to impart knowledge of the Model State Information System, but to provide the viewer with an opportunity to practice the knowledge gained, and to refer back to this workbook when using MSIS in daily operations.

Model State Information System

MSIS

Slide-Cassette Training Program

Volume II

Units I & II

INDIVIDUAL UNIT MATERIAL

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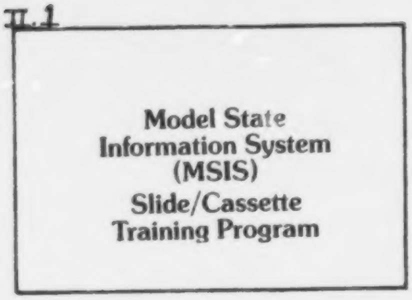
Volume II
MSIS Subsystems

INDIVIDUAL UNIT MATERIAL

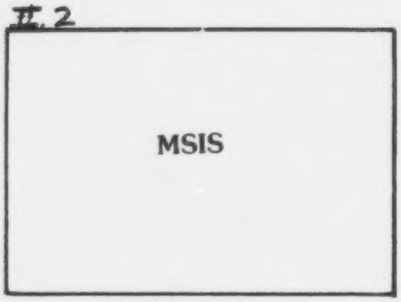
II.1



Model State Information System (MSIS) Slide/Cassette Training Program

This is the second of four volumes comprising the Model State Information System Slide-Cassette Training Program. The Model State Information System, commonly referred to as

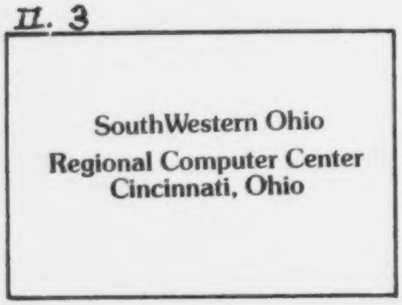
II.2



MSIS

MSIS, is a computer system designed to help the states implement the Safe Drinking Water Act.

II. 3



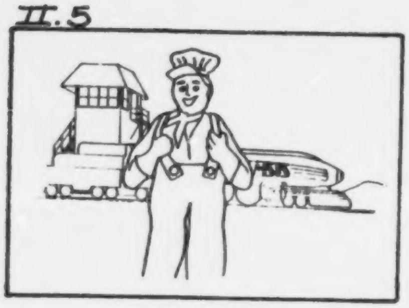
SouthWestern Ohio
Regional Computer Center
Cincinnati, Ohio

Both the computer system and this accompanying slide-cassette training program were developed by the South-Western Ohio Regional Computer Center,

II.4

SWORCC, under contract with the Office of Water Supply, Washington, D. C.

II.5



Before we continue on this journey, let me introduce myself. As the conductor of the MSIS train, I will be guiding you through this training program.

II.6

It is my responsiblity to keep things "on track" and see that you have a pleasant journey and a profitable learning experience. All aboard!

II.7

Purpose of MSIS ...

The purpose of the MSIS Computer System is to help the states implement the regulations resulting from the national Safe Drinking Water Act (SDWA).

II.8

MSIS Capabilities . . .

The MSIS has two distinct capabilities.

II.9

1. It maintains records on public water systems (PWS) and the quality of the water they supply

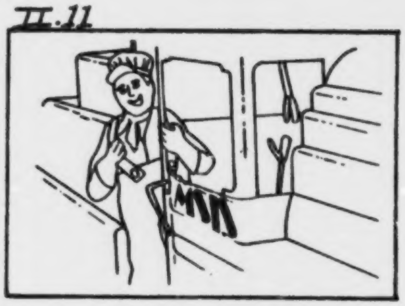
First, MSIS maintains records on public water systems (PWS) and the quality of water they supply.

II.10

2. It prepares reports required by the federal government under the national Safe Drinking Water Act (SDWA)

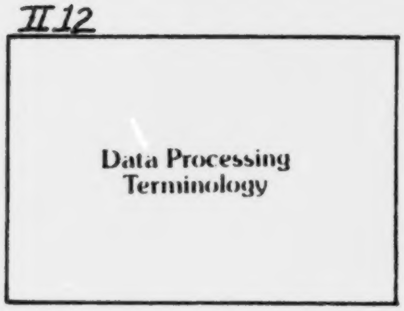
Second, MSIS prepares reports required by the federal government under the national Safe Drinking Water Act (SDWA). These reports are output in a format which satisfies the federal government's annual reporting requirements.

II.11



Before proceeding further, I think it would be helpful to define some data processing terms. MSIS is a computer system. Sound understanding of its functions and capabilities is dependent on your familiarity with commonly used data processing terms.

II.12


Data Processing Terminology

If you are familiar with the terms or covered them in Volume I of this series, skip these next terminology slides.

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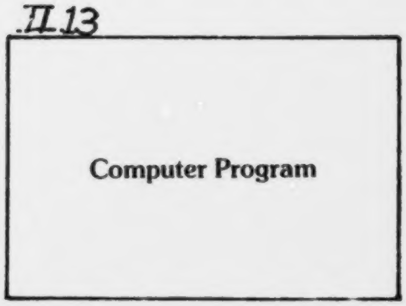

Computer Program

A computer program is a logical set of instructions for the computer in machine-readable format. Computer programs are often decks of punched cards.

II.14

Computer System

A computer system is a group of computer programs developed to accomplish specified functions. MSIS is such a computer system.

II.15

Subsystem

A computer system is made up of subsystems. MSIS has nine such subsystems.

II.16

Hardware

Hardware is any physical device of the computer. Examples are: printer, card reader, and card puncher.

II.17

Software

The computer programs are referred to as software.

II.18

Record

A record is a logical group of information. An example is the information contained in your social security record.

II.19

File

A file is a group of records, usually in a specific sequence, and often on magnetic tape. An example would be the Cincinnati social security file.

II.20

Data Element

A data element is an identifiable item within a record. Your social security number is such a data element.

II.21

Magnetic Tape

Magnetic tapes are used to store limited amounts of machine-readable information sequentially. It resembles home tape recorder tape, but it is wider.

II.22

Magnetic Disc

Magnetic discs are used to store large amounts of machine-readable information and are directly accessible by the computer.

II.23

Input

Input is any information to be entered on a computer file or table, or the actual process of entering such information. Keypunched cards are often used to enter input. They look like a stack of LP records.

II.24

Batch System

A batch system accumulates groups of inputs, such as keypunched cards, before submitting those inputs to the computer. The counterpart of the batch system is the on-line or real-time system where inputs are submitted without delay. MSIS is a batch system.

II25

Output

Output is information already processed by the computer. The federal reports produced by MSIS are examples of output.

II.26

Report

A report is output by the computer in user-readable format. Examples are printed listings.

II.27

Turn-Around Document

A turn-around document is a report printed by the computer and later used as an input to the computer. MSIS provides turn-around documents.

II.28

Internal

The word "internal" refers to processing done by computer programs within the computer.

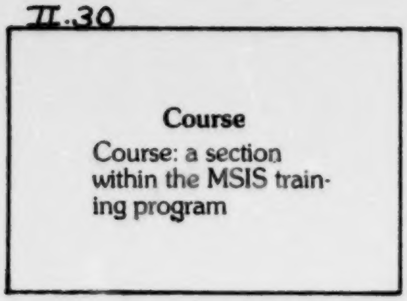
II.29

Glossary

Your workbook contains a glossary. The computer terms just discussed, as well as other generally unfamiliar words and abbreviations are included there for your convenience.

Two non data-processing terms especially relevant to your understanding of the formal material to be presented are the terms "course" and "unit".

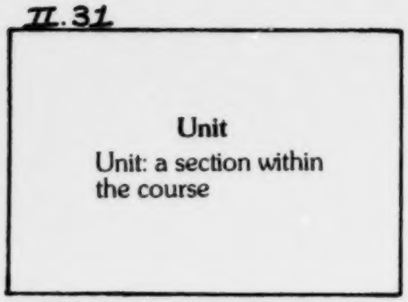
II.30


Course

Course: a section within the MSIS training program

Volume II of the MSIS Slide-Cassette Training Program, which you are now viewing, meets this definition of a course.

II.31


Unit

Unit: a section within the course

This course, MSIS Subsystems, contains two units. However, the number of units may vary from course to course.

II.32

That's it for the preliminaries, folks. From this point forward, the tour will cover the formal course material.

II.33

Volume II

MSIS Subsystems

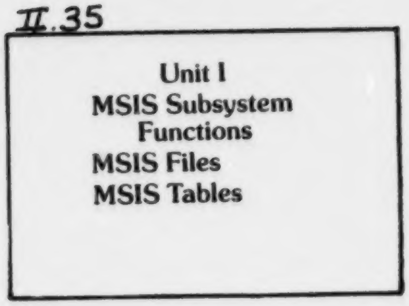
The subsystems referred to here comprise the batch computer system called the Model State Information System or MSIS.

II.34

Unit I
MSIS Subsystem Functions
MSIS Files
MSIS Tables
Unit II
Input Forms
Output Reports

This course consists of two units. Unit I contains a discussion of the subsystems, the files and the tables, while Unit II covers input forms and output reports.

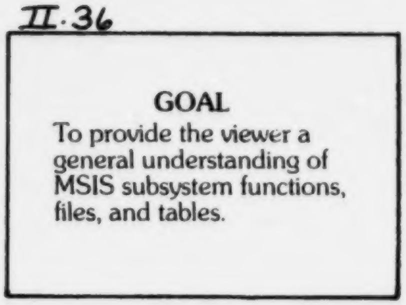
II.35



Unit I
MSIS Subsystem Functions
MSIS Files
MSIS Tables

In our consideration of Unit I, it is critical that you learn the functions of the subsystems. Next in importance are the files, which are used daily by state water division personnel. And last, the tables, which you should know about even though they are used only internally by the computer.

II.36



GOAL

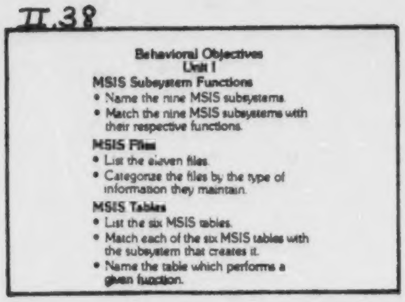
To provide the viewer a general understanding of MSIS subsystem functions, files, and tables.

This is the goal for Unit I. Note that the intent is a "general understanding," not "complete knowledge."

II.37

Let me clarify our meaning of the words "goals" and "objectives." As used here, a goal is the end result sought and is stated in board, general terms. An objective is much more specific, and when expressed in behavioral terms, can be easily measured to determine progress. If properly stated, the attainment of the behavioral objectives will assure that the goal is reached. There are behavioral objectives for each unit. Those for Unit I are listed here.

II.38



Behavioral Objectives
Unit I

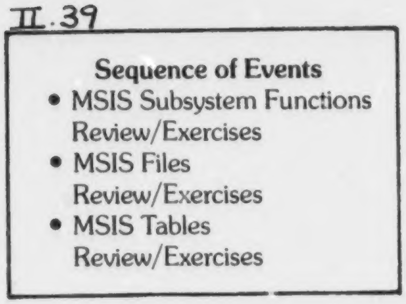
MSIS Subsystem Functions
- Name the nine MSIS subsystems.
- Match the nine MSIS subsystems with their respective functions.

MSIS Files
- List the eleven files.
- Categorize the files by the type of information they maintain.

MSIS Tables
- List the six MSIS tables.
- Match each of the six MSIS tables with the subsystem that creates it.
- Name the table which performs a given function.

The course material as well as the review exercise will be based on these behavioral objectives. Take a few moments to study these objectives since they can help guide you through the material to follow.

II.39



Sequence of Events
- MSIS Subsystem Functions
  Review/Exercises
- MSIS Files
  Review/Exercises
- MSIS Tables
  Review/Exercises

Material will be covered in the sequence indicated. Note that no attempt has been made to indicate the time required to cover the material. This, obviously, will depend on the viewer and the time spent with the exercises, glossary, and review of material in the workbook provided.

VOLUME II

MSIS SUBSYSTEMS

UNIT I

II.40

Unit I
MSIS Subsystem Functions
MSIS Files
MSIS Tables

II.41

MSIS
Subsystem
Functions

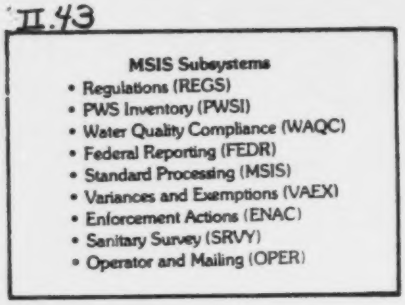
Our first topic is the MSIS Subsystem functions.

II.42

MSIS Subsystems

The Model State Information System has nine such subsystems.

II.43

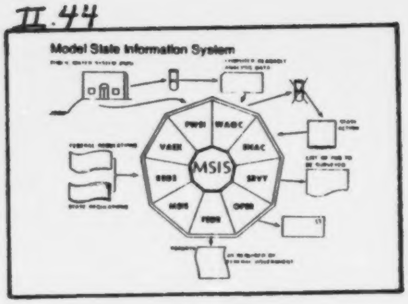


MSIS Subsystems

- Regulations (REGS)
- PWS Inventory (PWSI)
- Water Quality Compliance (WAQC)
- Federal Reporting (FEDR)
- Standard Processing (MSIS)
- Variances and Exemptions (VAEX)
- Enforcement Actions (ENAC)
- Sanitary Survey (SRVY)
- Operator and Mailing (OPER)

Start now to associate the subsystem name with its abbreviation. Note that each subsystem abbreviation contains four letters. In the second entry, PWS stands for public water system.

II.44



Model State Information System

The subsystems are shown here together with an artist's conception of their general function. We will be looking at each portion of the circle which represents a subsystem and discussing its functions.

II.45

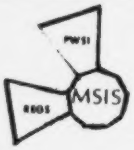
Regulations (REGS)

Our discussion of the subsystems will commence with the regulations, since the Regulations Subsystem contains the computerized version of the state and federal regulations governing the quality of water in public water systems.

Requirements focus on sample frequency and on contaminant levels of chemicals, turbidity, bacteria, and radionuclides.

State regulations may add to, but not detract from, the federal requirements.

II.46

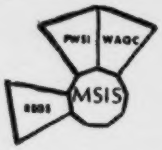


PWS Inventory (PWSI)

The Public Water System Inventory subsystem performs the necessary purpose of recording data about a state's public water systems (PWSs).

Such things as name, address, population served, water sources and capacity are included.

II.47

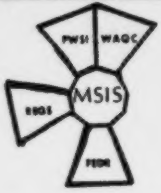


Water Quality Compliance
(WAQC)

The Water Quality Compliance subsystem uses the REGS subsystem data to determine a Public Water System's compliance with the State and federal regulations.

This subsystem schedules sampling, keeps records of results and determines violations.

II.48



Federal Reporting (FEDR)

Section 142.15 of the regulations requires that a state report to the federal government on:

- changes to its Public Water System Inventory.
- summary of PWS violations.
- enforcement actions taken on
- summary of the status of variances and exemptions granted PWS's.
- prompt notification of variances and exemptions granted PWS's.

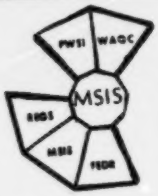
MSIS fulfills the first four requirements; a state must use other means to fulfill the last one.

The Federal Reporting subsystem prepares machine-readable output that is used to satisfy three of these requirements:

- changes to the Public Water System Inventory.
- a summary of variances and exemptions granted, and
- a summary of PWS violations.

A printed version of this output satisfies the requirement for public notice.

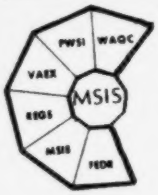
II.49



Standard Processing (MSIS)

The Standard Processing subsystem performs housekeeping functions for the other eight subsystems. Examples are the output of error messages and the keeping of history records. Note the abbreviation - MSIS - and do not be confused by the fact that this same abbreviation was used for the entire Model State Information System.

II.50

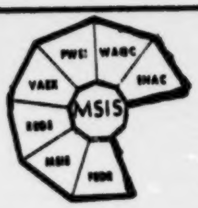


Variances and Exemptions (VAEX)

The Variances and Exemptions subsystem records and reports information on all variances and exemptions granted by the state to its public water systems. This information is used by the FEDR subsystem to prepare the summary report on variances and exemptions granted.

As with all requirements there are some valid exceptions, and the state is authorized to grant these exceptions.

II.51

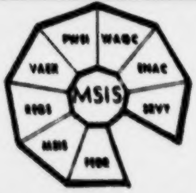


Enforcement Actions (ENAC)

The Enforcement Actions subsystem records and reports the states' actions to correct violations by their public water systems. Some clarification of this description of ENAC is in order.

States accepting primacy are required to enforce the regulations governing their public water systems. They are also required to report to the federal government on the action taken. However, it is the state's choice as to which of its enforcement steps are entered into ENAC as enforcement actions for future federal reporting.

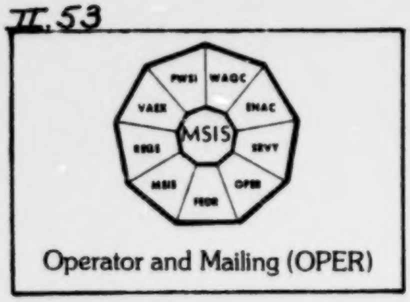
II.52



Sanitary Survey (SRVY)

The Sanitary Survey subsystem selects public water systems for an in-depth state inspection. It should be noted that the criteria used by the subsystem are prioritized by the state.

II.53

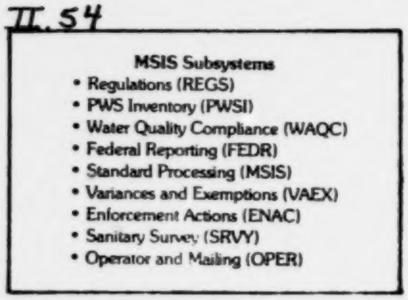


Operator and Mailing (OPER)

The last subsystem is the Operator and Mailing subsystem. It maintains addresses of operators of the states' public water systems, as well as other persons the state wishes to correspond with concerning drinking water quality.

It performs the simple but vital housekeeping task of producing labels and mailing lists upon demand.

II.54



MSIS Subsystems

- Regulations (REGS)
- PWS Inventory (PWSI)
- Water Quality Compliance (WAQC)
- Federal Reporting (FEDR)
- Standard Processing (MSIS)
- Variances and Exemptions (VAEX)
- Enforcement Actions (ENAC)
- Sanitary Survey (SRVY)
- Operator and Mailing (OPER)

Spend some time reviewing this list of subsystems and their abbreviations before we look at the relationships among subsystems.

II.55

MSIS Subsystem
Independence
Dependence

The first relationship to be noted among subsystems is that of independence and dependence. The nine Model State Information System subsystems contain some characteristics of both.

II.56

MSIS Subsystem
Independence
Dependence

The focus is certainly on the independent aspect. Each subsystem does in fact have a completely separate identity and generally acts independently of the other eight subsystems.

II.57

MSIS Subsystem
Independence
Dependence

There is, however, a dependent aspect, since the subsystems must interact to obtain needed information.

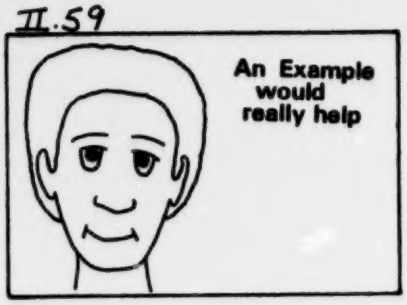
Change tray and cassette

II.58

FFDR?
!?
?
VAEX
SRVY
?
!!!
WAQC
-$

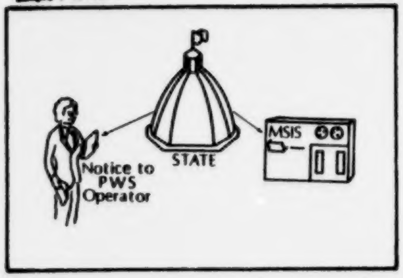
It's complicated, isn't it?

II.59


An Example
would
really help

Perhaps an example might help to further clarify the relationships. It should be emphasized that this is only an example, not a presentation of an actual occurence.

II.60

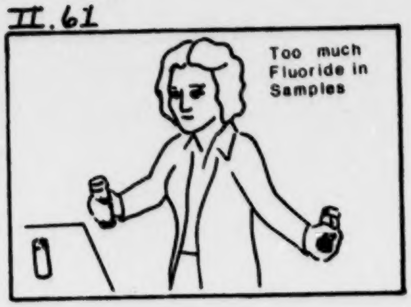

Notice to
PWS
Operator
STATE
MSIS

Let's suppose that a new public water system operator gets certified by the state.

The state then updates the Public Water System Inventory subsystem to reflect this new information which in turn updates its own history file.

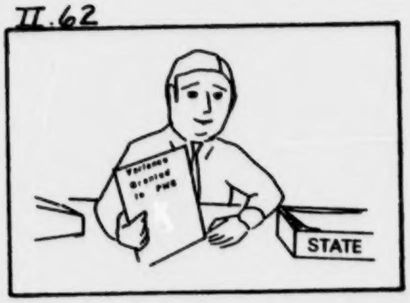
At the same time, the state enters the information in the Operator and and Mailing subsystem.

II.61


Too much
Fluoride in
Samples

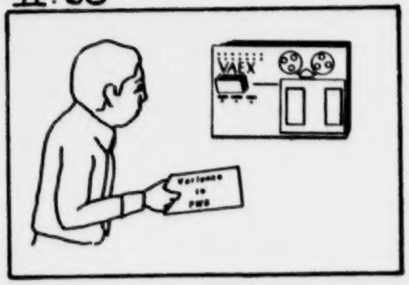
Now suppose this new operator requests a variance from the state due to a consistently high fluoride Maximum Contaminant Level (MCL).

II.62


Variance
Granted
to PWS
STATE

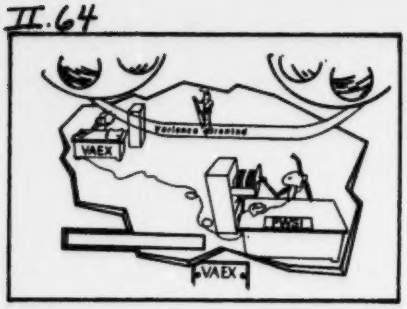
Suppose the state grants this request.

II.63


VAEX
Variance
to
PWS

The state then enters a record of this variance in the Variance and Exemptions subsystem if it uses that subsystem and . . .

II.64

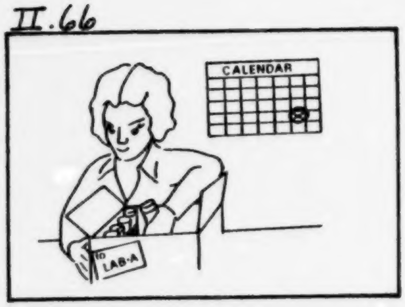

VAEX
Variance Granted
PWSI
VAEX

. . . the Variance and Exemptions subsystem "internally" notifies the Public Water System Inventory subsystem.

II.65

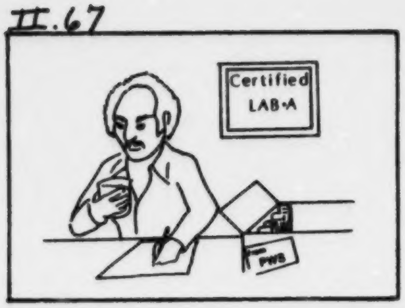
That concludes all of the preliminary work. Our new operator is now ready for routine business.

II.66


CALENDAR
to LAB-A

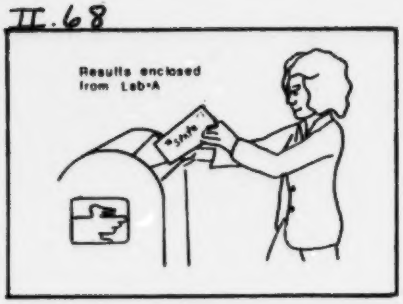
The water is sampled as required by the regulations and sends the samples to a laboratory.

II.67


Certified
LAB-A
PWS

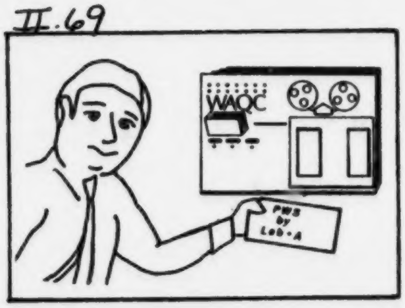
The laboratory performs the necessary analysis and forwards the results.

II.68


Results enclosed
from Lab-A
State

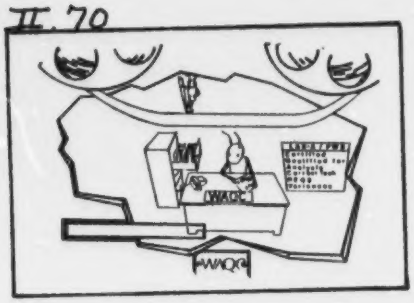
Actually, the state can choose whether the lab will forward the results directly to it or return the results to the public water system, which will then forward them to the state.

II.69


WAQC
PWS
by
Lab-A

Upon receiving the laboratory analysis, the state enters the information in the Water Quality Compliance subsystem.

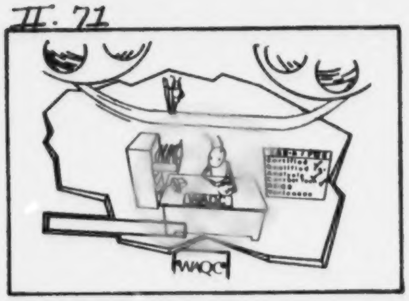
II.70


Certified
Qualified for Analysis
Correct tech
Variances
WAQC
WAQC

At this point, the heart of the Model State Information System gets to work. WAQC checks to see that:

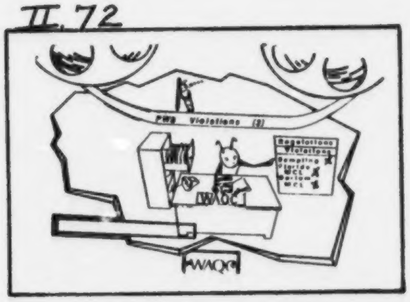
- The lab was certified.
- It was qualified to perform that analysis.
- It used the right techniques.
- The regulation requirements were met.
- Whether variances or exemptions had been granted.

II.71



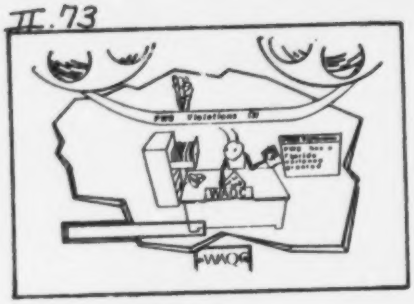
WAQC checks the laboratory certification, analysis method and techniques used and finds them to be acceptable. However . . .

II.72


PWS Violations (3)
Regulations
Violations
Sampling
MCL
WAQC
WAQC

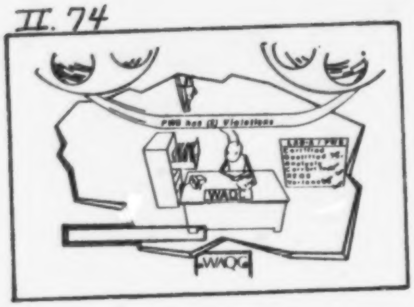
. . . when the Regulations File is checked for compliance, three violations are found -- one on sampling and two on contaminant MCL's.

II.73


PWS Violations
WAQC
WAQC

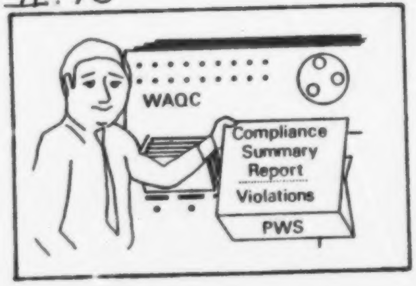
At this point, the Water Quality Compliance subsystem checks with the Public Water System Inventory to see if any variances or exemptions have been granted. (Remember that VAEX notifies PWSI of any variances or exemptions.) PWSI informs that . . .

II.74


PWS has (3) Violations
Certified
WAQC
WAQC

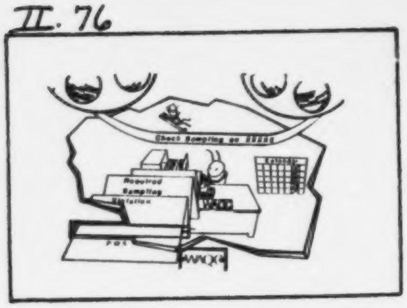
. . . a variance had been granted for the fluoride MCL; however, neither a variance nor an exemption existed for either the sampling error or the other contaminant violation.

II.75


WAQC
Compliance Summary Report
Violations
PWS

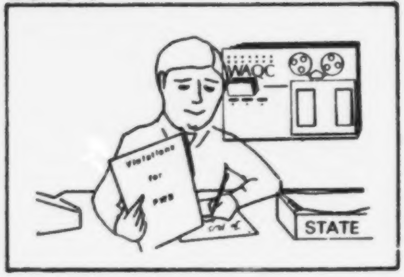
The Water Quality Compliance subsystem therefore records the two violations, outputs a summary report to the state to this effect, and . . .

II. 76


Check Sampling on
Required
Sampling
Violation
PWS
WAQC

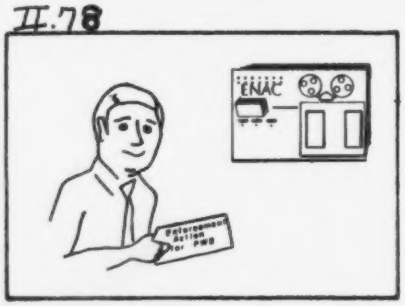
. . . sets up the necessary check sampling for the PWS as required by the regulations for the incurred violations.

II.77


WAQC
Violations
for
PWS
STATE

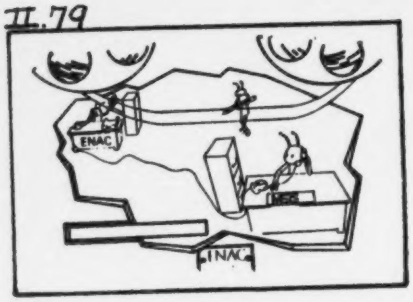
The state, noting these violations on the WAQC report, writes a letter to the offending public water system as its first enforcement action.

II.78


ENAC
Enforcement
Action
for PWS

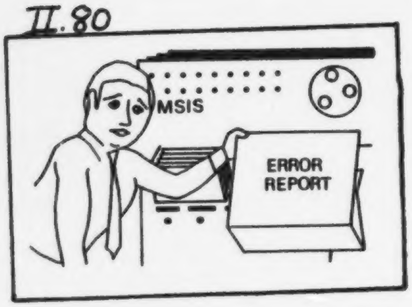
The state also inputs a message to the Enforcement Action subsystem detailing the action taken, but . . .

II.79



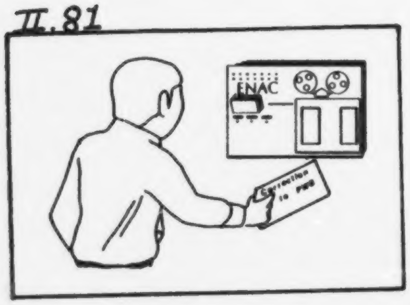
. . . makes an error on the input form. As a consequence, the subsystem rejects the information and notifies the MSIS Standard Processing subsystem of the error.

II.80


MSIS
ERROR REPORT

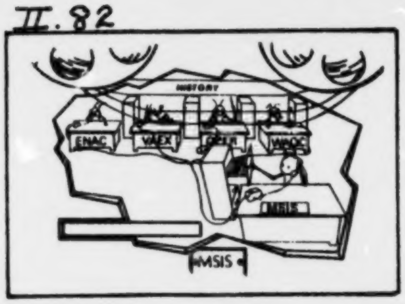
The MSIS subsystem outputs a report telling the state what the error was.

II.81


ENAC
Correction

The state makes the necessary correction and re-enters the information.

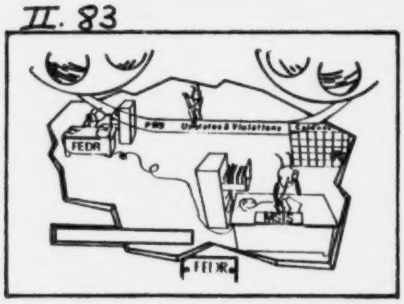
II.82


HISTORY
ENAC
VAEX
OPER
WAQC
MSIS
MSIS

At this point all transactions have been completed; it is all history.

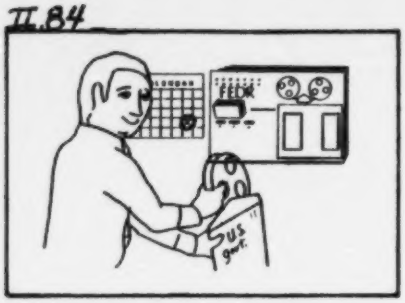
Remember that the MSIS Standard Processing subsystem has made a historical record of all Record Correction and Maintenance transactions to the VAEX, ENAC, OPER, and WAQC subsystems. PWSI keeps its own history records.

II.83


FEDR
PWS
Unresolved Violations
MSIS
FEDR

At the end of the reporting period outputs will be generated by the FEDR subsystem. . .

II.84



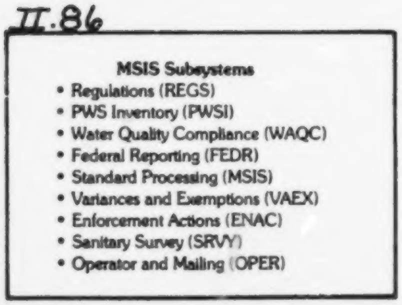
. . . and, the state will forward the machine-readable output in accordance with the regulations. That concludes the example of one way the system might work and, in fact, finishes the consideration of subsystem functions.

II.85

MSIS
SUMMARY
Railroad
MSIS
STOP

Let's review briefly.
The Model State Information System has nine subsystems that help states carry out the requirements of the SDWA and its regulations.

II.86

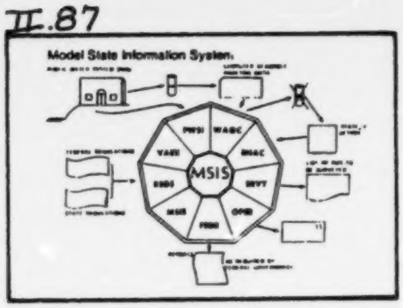


MSIS Subsystems

- Regulations (REGS)
- PWS Inventory (PWSI)
- Water Quality Compliance (WAQC)
- Federal Reporting (FEDR)
- Standard Processing (MSIS)
- Variances and Exemptions (VAEX)
- Enforcement Actions (ENAC)
- Sanitary Survey (SRVY)
- Operator and Mailing (OPER)

Once more, review the names and abbreviations of the MSIS Subsystems.

II.87



Model State Information System

On this slide, associate in any way you find helpful, the general functions of each subsystem.

II.88

We have covered a lot of detailed information on the MSIS Subsystems. Now it is time for you to rest, reflect and work on your own.

II.89

Review/Exercises

A complete knowledge of the subsystem capabilities and functions is essential to the understanding of the MSIS computer system. Work carefully with the exercises provided, reviewing as necessary to clarify any points in doubt.

II. 90

Refer to: II. 1. E1 II. 1. A1 II. 1. E2 II. 1. A2

Your work exercise is in your workbook. Use the answer sheet to verify your answers.

STOP TAPE . . . COMPLETE REVIEW/EXERCISES

II. 91

Unit I **MSIS Subsystem Functions** **MSIS Files**

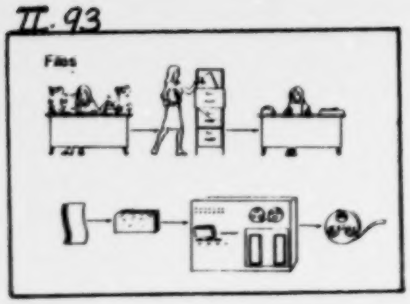
Our next topic is MSIS Files.

II. 92

MSIS Files

Recall that files are logical groups of records which the computer maintains for the user. In this case it is the MSIS computer with the state as user.

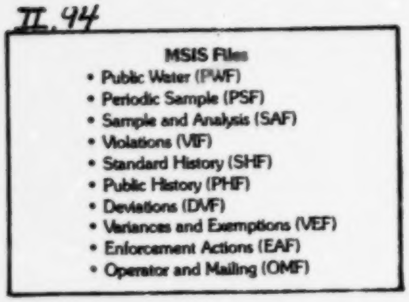
II.93



The concept of files maintained by the computer is very similar to the concept of an office filing system as shown here.

MSIS has twelve separate files; however, we will only consider eleven here; the twelfth file is really a table, covered later in this course.

II.94



MSIS Files

- Public Water (PWF)
- Periodic Sample (PSF)
- Sample and Analysis (SAF)
- Violations (VIF)
- Standard History (SHF)
- Public History (PHF)
- Deviations (DVF)
- Variances and Exemptions (VEF)
- Enforcement Actions (EAF)
- Operator and Mailing (OMF)

Note that the abbreviations consist of three letters with the last letter always "F" for File. One of the eleven files has been omitted; it is the Compliance Status File (CSF) and will be discussed later.

We will start our consideration of the files with the Public Water File (PWF) and continue through the list.

II.95

MSIS Files

- Public Water (PWF)

The Public Water System Inventory subsystem maintains the PWF File which contains complete information on public water systems. Actually, there is room for the state to enter about 100 different items of information, or data elements. Such things as name, address, capacity, will be found here.

II.96

MSIS Files

- Public Water (PWF)
- Periodic Sample (PSF)

The Water Quality Compliance subsystem maintains the Periodic Sample File (PSF). It contains a temporary record of each public water system sample taken together with the results of the analyses. The file information is then compared against the laboratory table to insure that the lab was certified and used the right techniques in the analysis. The data are then summarized, entered on the Sample and Analysis File and deleted from the Periodic Sample File.

II.97

MSIS Files

- Public Water (PWF)
- Periodic Sample (PSF)
- Sample and Analysis (SAF)

The Sample and Analysis File (SAF) or Sample Analysis File is also maintained by the Water Quality Compliance subsystem. This file is used to determine if regulation violations have occurred in the area of sampling and maximum contaminant levels.

II.98

MSIS Files

- Public Water (PWF)
- Periodic Sample (PSF)
- Sample and Analysis (SAF)
- Violations (VIF)

The Violations File (VIF) is the third and last file maintained by the WAQC subsystem. As one might suppose, it contains a record of all violations incurred by the state's Public Water Systems.

II.99

MSIS Files

- Public Water (PWF)
- Periodic Sample (PSF)
- Sample and Analysis (SAF)
- Violations (VIF)
- Standard History (SHF)

The MSIS Standard Processing subsystem maintains the Standard History File (SHF), which contains a record of all record creation and maintenance transactions to the VIF, VEF, EAF, and OMF. The PWF is exempted because the volume of its transactions is so large that it requires its own history file.

II.100

MSIS Files

- Public Water (PWF)
- Periodic Sample (PSF)
- Sample and Analysis (SAF)
- Violations (VIF)
- Standard History (SHF)
- Public History (PHF)

Maintained by the Public Water System Inventory subsystem, the Public History File (PHF) provides a history of the changes to "only" the Public Water File. That is, the PWSI subsystem maintains its own history.

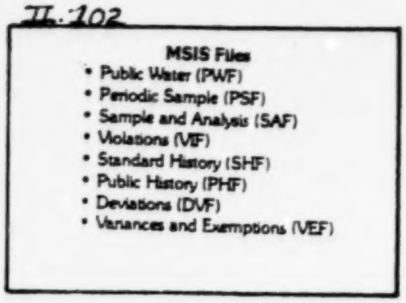
II.101

MSIS Files

- Public Water (PWF)
- Periodic Sample (PSF)
- Sample and Analysis (SAF)
- Violations (VIF)
- Standard History (SHF)
- Public History (PHF)
- Deviations (DVF)

The Federal Reporting Subsystem maintains the Deviations File (DVF), where a record is kept of the Public Water System violations together with the variances and exemptions

II.102

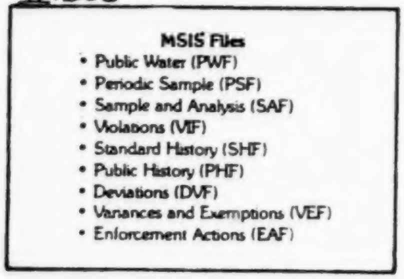


MSIS Files

- Public Water (PWF)
- Periodic Sample (PSF)
- Sample and Analysis (SAF)
- Violations (VIF)
- Standard History (SHF)
- Public History (PHF)
- Deviations (DVF)
- Variances and Exemptions (VEF)

The Variances and Exemptions File (VEF) is maintained by the Variances and Exemptions subsystem. Three categories of information are found in this file: first, descriptive facts about the variances and exemptions granted; second, a narrative description of the case; and third, an outline of steps for the PWS to take in order to gain compliance with the regulations.

II.103

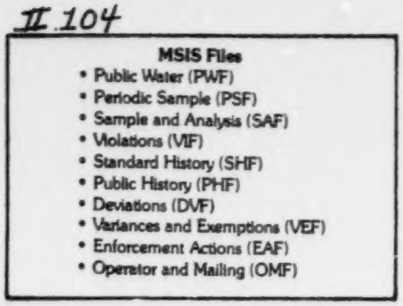


MSIS Files

- Public Water (PWF)
- Periodic Sample (PSF)
- Sample and Analysis (SAF)
- Violations (VIF)
- Standard History (SHF)
- Public History (PHF)
- Deviations (DVF)
- Variances and Exemptions (VEF)
- Enforcement Actions (EAF)

The Enforcement Actions File (EAF) is maintained by the Enforcement Actions subsystem. In this file is found a history of state enforcement actions against violating Public Water Systems.

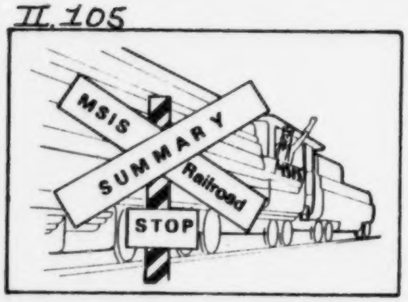
II.104



MSIS Files
- Public Water (PWF)
- Periodic Sample (PSF)
- Sample and Analysis (SAF)
- Violations (VIF)
- Standard History (SHF)
- Public History (PHF)
- Deviations (DVF)
- Variances and Exemptions (VEF)
- Enforcement Actions (EAF)
- Operator and Mailing (OMF)

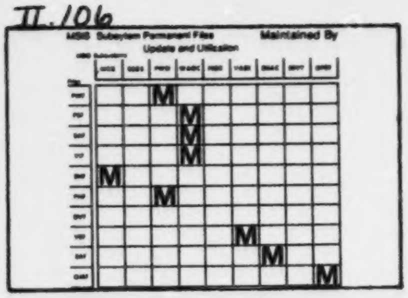
We find the expected correspondence. The OPER subsystem does maintain the OMF file. Strictly a convenience file, OMF contains the names and addresses of those frequenctly contacted by the state. The Compliance Status File (CSF) is a permanent, internal file, not accessible by the user. It is used by the computer to maintain records on PWS on past reporting and to determine future reporting requirements.

II.105



In summary, let's look at a complete listing of the files and the subsystems that maintain them.

II.106



MSIS Subsystem Permanent Files Maintained By
Update and Utilization

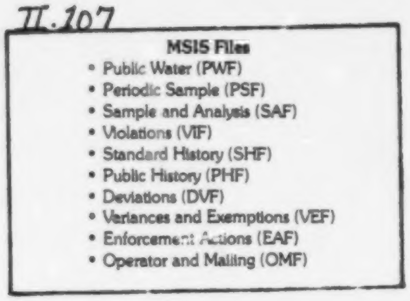
First, notice which subsystems maintain no files. Think why this is so.

Looking from left to right, we see immediately that the regulations subsystem has no file to maintain. The reason is simple. That file will be included with the list of tables. Looking further we then note that the federal reporting subsystem does not maintain a file. Again, this is expected since the FEDR subsystem uses other files maintained by other subsystems to prepare its reports. The only other subsystem without a file to maintain is the Sanitary Survey subsystem. Here, too, a separate file is not required since the needed information is obtained from the Violations File.

Now find the WAQC subsystem, the workhorse of the entire computer system. Note that it has three files to maintain.

Look briefly at the other files and note their logical association with the subsystem involved.

II.107

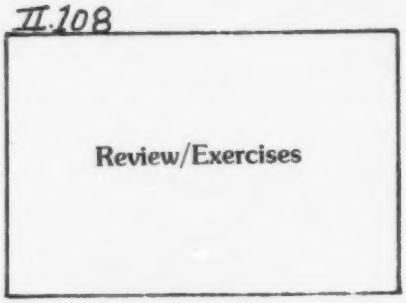


MSIS Files

- Public Water (PWF)
- Periodic Sample (PSF)
- Sample and Analysis (SAF)
- Violations (VIF)
- Standard History (SHF)
- Public History (PHF)
- Deviations (DVF)
- Variances and Exemptions (VEF)
- Enforcement Actions (EAF)
- Operator and Mailing (OMF)

Again, review the names and abbreviations for the ten files found within the Model State Information System. Recall that files are maintained by the computer for the sole benefit of the user.

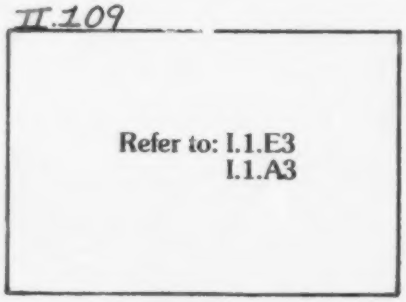
II.108



Review/Exercises

That concludes the discussion of MSIS files and brings us to another review exercise.

II.109



Refer to: I.1.E3
I.1.A3

Turn to the exercise in your workbook. Use the answer sheet to check your work.

STOP TAPE . . . COMPLETE REVIEW/EXERCISES

II.110

Unit I
MSIS Subsystem Functions
MSIS Files
MSIS Tables

MSIS Tables is the third and last topic in Unit I.

II.111

MSIS Tables

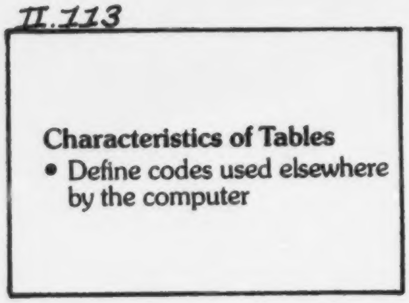
Recall that our definition of a computer table was, logical groups of records which are used internally by the computer files and programs.

II.112

Characteristics of Tables....

Tables have certain characteristics with which you should be familiar.

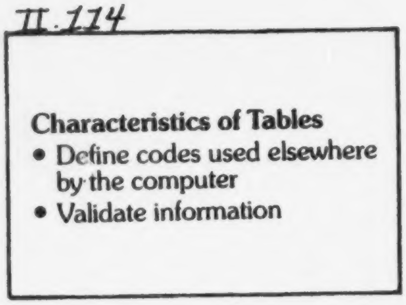
II.113



Characteristics of Tables
- Define codes used elsewhere by the computer

By using codes, the computer is saved the time and trouble of manipulating the entire definition. An example is a code for an error message. The computer uses only the code. The MSIS subsystem then gets the definition from a table and prints out the error message.

II.114



Characteristics of Tables
- Define codes used elsewhere by the computer
- Validate information

The same rationale applies in the validation of information. When the WAQC subsystem examines the results of a water sample analysis, it compares input information against valid table listings. For instance, information on laboratory certification is contained in the Laboratory Tables.

II.115

Characteristics of Tables
- Define codes used elsewhere by the computer
- Validate information
- Are directly accessible

Table information is generally stored on magnetic discs which are directly accessible to the computer. The end result is a savings in computer time.

II.116

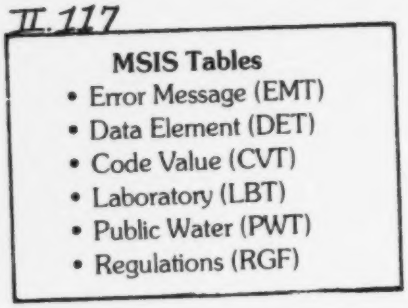
Characteristics of Tables
- Define codes used elsewhere by the computer
- Validate information
- Are directly accessible
- Once established seldom changed

Since tables contain "basic" definitions, they tend to be more or less permanent. Once established, they seldom change.

In summary, tables are inserted in computer programs to reduce computer running time. Table information generally consists of basic definitions which seldom change.

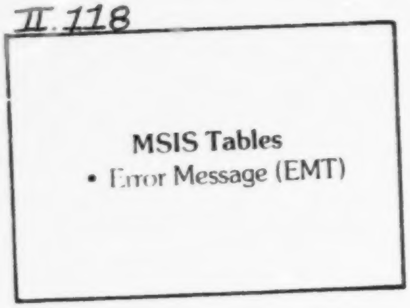
MSIS has six tables.

II.117


MSIS Tables
- Error Message (EMT)
- Data Element (DET)
- Code Value (CVT)
- Laboratory (LBT)
- Public Water (PWT)
- Regulations (RGF)

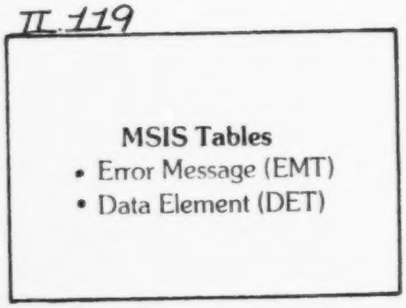
Again, associate the table name with its abbreviation. Notice that all abbreviations contain only three letters, the last letter in each case being a T for Table. The only exception is the last entry, Regulations File. This last entry is the twelfth file; however, since it bears characteristics of a table, it is included in our consideration of tables.

II.118


MSIS Tables
- Error Message (EMT)

The Standard Processing subsystem creates the first three tables to be discussed. The Error Message Table (EMT) matches error codes to the message represented by the code.

II.119


MSIS Tables
- Error Message (EMT)
- Data Element (DET)

The Data Element Table (DET) is also created by the MSIS subsystems. DET matches the data element catalogue number to its name and a description of its location.

II 120

MSIS Tables
- Error Message (EMT)
- Data Element (DET)
- Code Value (CVT)

The last of the three tables created by the MSIS subsystem, the Code Value Table (CVT), contains a listing of the valid codes to be used for state-defined data elements.

II.121

MSIS Tables
- Error Message (EMT)
- Data Element (DET)
- Code Value (CVT)
- Laboratory (LBT)

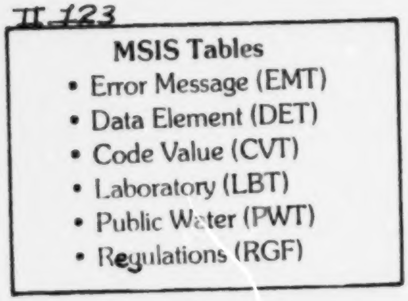
The Water Quality Compliance subsystem creates the Laboratory Table (LBT). It lists those laboratories which have been certified to perform, and the allowable methods they can use for the analyses.

II.122

MSIS Tables
- Error Message (EMT)
- Data Element (DET)
- Code Value (CVT)
- Laboratory (LBT)
- Public Water (PWT)

The Public Water Table (PWT) is created automatically (or internally) by the Public Water System Inventory subsystem. This means that no special input form is required. PWT contains abbreviated information on the public water systems.

II.123



MSIS Tables

- Error Message (EMT)
- Data Element (DET)
- Code Value (CVT)
- Laboratory (LBT)
- Public Water (PWT)
- Regulations (RGF)

Our last table entry is the Regulations File (RGF). It was decided to include the Regulations File with the tables since it does in fact perform the function of a table; that is, it is used only by the computer. The Regulations File is created by the Regulations subsystem, and contains both the federal and state requirements governing public water systems. The computer uses the RGF to validate sample analysis data on PWS's.

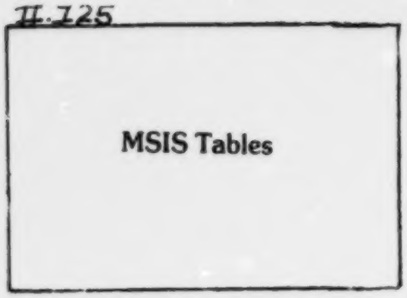
That concludes the discussion of MSIS tables.

II.124

MSIS
SUMMARY
Railroad
MSIS
STOP

Let's review the important points again.

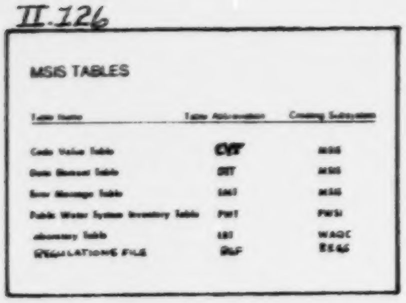
II.125



MSIS Tables

First, the definition of a table. Remember, a table was defined as a logical group of records used internally by the computer.

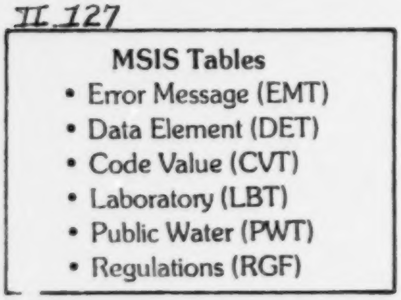
II.126



MSIS TABLES

Next, look at this summary of the tables and subsystems which create them.

II.127



MSIS Tables

- Error Message (EMT)
- Data Element (DET)
- Code Value (CVT)
- Laboratory (LBT)
- Public Water (PWT)
- Regulations (RGF)

And finally, a last look at the six MSIS tables and abbreviations.

II.128

Well, folks, that concludes Unit I of the course on MSIS functions. Hope you enjoyed the scenery as we chugged our way through the functions, files and tables. Work hard on the review exercise and I will see you in Unit II.

II.129

Review/Exercises

A review exercise for MSIS tables has been provided in your workbook.

II.130

Refer to: II.1.E4
II.1.A4

Refer to: II.1.E5
II.1.A5

Again, work carefully, reviewing the text in your workbook as necessary.

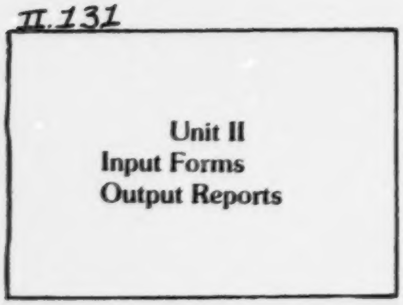
Change tray and cassette

VOLUME II

MSIS SUBSYSTEMS

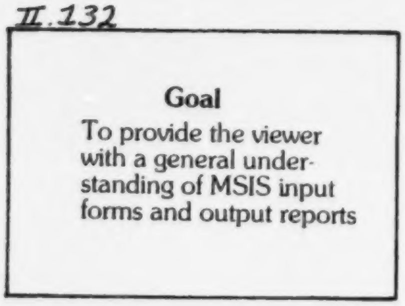
UNIT II

II.131


Unit II
Input Forms
Output Reports

This is the second and final unit contained in this course.

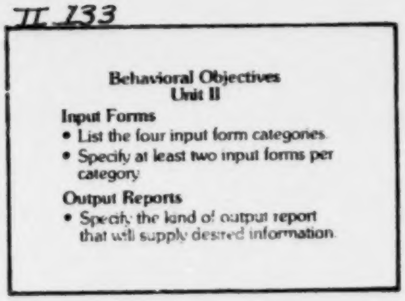
II.132


Goal
To provide the viewer with a general understanding of MSIS input forms and output reports

Read the goal for Unit II.

Again, the goal is to provide you with a "general understanding" of the information covered.

II 133



Behavioral Objectives
Unit II

Input Forms

- List the four input form categories.
- Specify at least two input forms per category

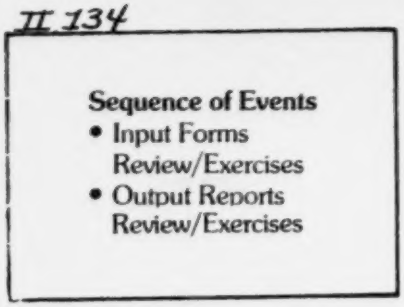
Output Reports

- Specify the kind of output report that will supply desired information.

The behavioral objectives we will focus on are shown here. Take a few moments to become familiar with them.

As usual, both the material presented and the review exercises will focus on the objectives shown.

II 134



Sequence of Events

- Input Forms
  Review/Exercises
- Output Reports
  Review/Exercises

Material will be presented in this sequence.

Let me introduce Unit II by reminding you that MSIS is s system for keeping records. Obviously, we must put information in, but more importantly, the MSIS computer system gives out reports.

II.135

MSIS
Input Forms

Simply stated, input forms allow the user to enter desired information into the computer. With the MSIS computer system, the state will use input forms to enter information on the computer tables and files. This course briefly discusses MSIS input forms. Volumes III and IV cover them in detail.

II.136

Types of Input Forms

- Processing Options
- Table Creation
- Record Creation and Maintenance
- Water Quality Transactions

There are four general types of input forms.

Each of these types of input forms itself contains a variety of forms. All types will be discussed separately and examples will be shown. Copies of the forms are included in your workbook and should be studied at the next review exercise.

II.137

Processing Option Input Forms

As the name indicates, the Processing Option Input Forms allow the user to choose from available computer variables. Four kinds of forms are contained in this category. First, let's consider the PROC form.

II.138

Processing Option Input Forms

- PROC

The PROC form specifies the date to be entered on the report and can indicate other options such as whether the creation of a file or a report is required.

II.139

Processing Option Input Forms

- PROC
- SORT

SORT (pronounced Sort) forms contain instructions to be used by the computer in sorting. SORT forms are standard computer forms that indicate the data elements to be used, specify the sorting sequence, and indicate either an ascending or descending order.

II.240

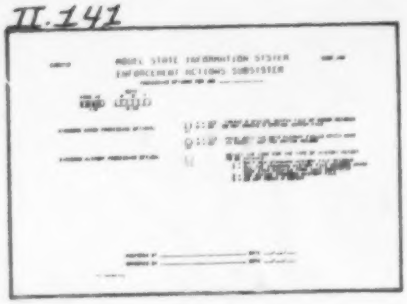
Processing Option Input Forms

PROC
SORT
SEL1 (Selection Criteria 1)
SEL2 (Selection Criteria 2)

The two SEL forms are shown together since they always work together. Between the two, they specify the criteria which the computer will use to select records for reports.

We will now look at each of the four Processing Option Forms.

II.141



MODEL STATE INFORMATION SYSTEM
ENFORCEMENT ACTIONS SUBSYSTEM

I want to use this form to point out some general characteristics of all input forms.

First, the words, "Model State Information System" always appear on the top line. This identifies the MSIS computer system.

The second line always identifies the subsystem user. Although more than one subsystem may use the same form, in all cases the second line will show the subsystem for which the information is intended. On this form, it is the Enforcement Actions subsystem.

The third line generally, but not always, contains the form name. Obviously, this is one of the exceptions, since this form takes its name from blocks one through four which are P-R-O-C, or PROC.

No slide change

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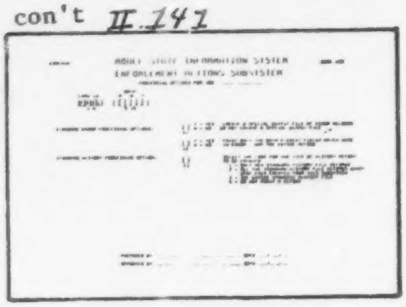
con't II.141

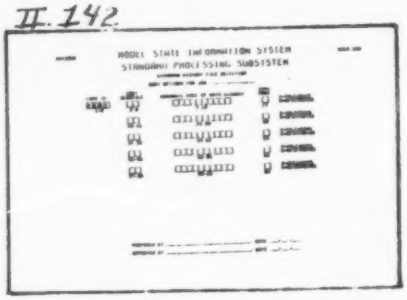


MODEL STATE INFORMATION SYSTEM
ENFORCEMENT ACTIONS SUBSYSTEM

At the extreme upper left-hand top corner appears the program number. It is made up of the subsystem abbreviation and a three-digit number. The program number on this PROC form is ENAC010.

The extreme upper right-hand corner has the form number, which consists of the subsystem abbreviation and a 100 series number. The 100 series represents input forms.

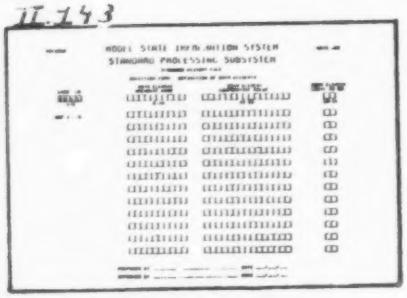
II.142



MODEL STATE INFORMATION SYSTEM
STANDARD PROCESSING SUBSYSTEM

Note the name of the computer "system" on line one; the subsystem on line two; the program number upper left and form number upper right.

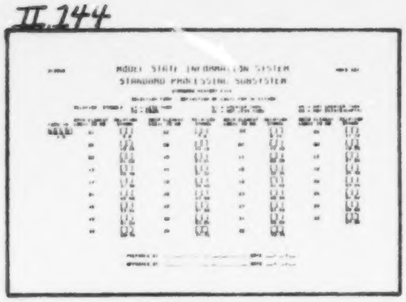
II.143



MODEL STATE INFORMATION SYSTEM
STANDARD PROCESSING SUBSYSTEM

The standard characteristics are contained here with the exception of the form name, which is again in blocks one through four, upper left.

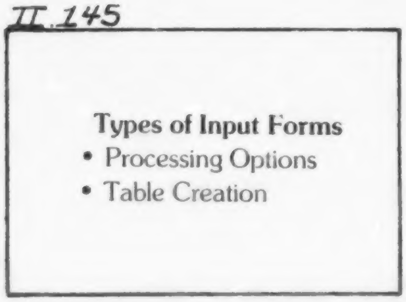
II.144



MODEL STATE INFORMATION SYSTEM
STANDARD PROCESSING SUBSYSTEM

SEL 2 is always used with SEL 1; in fact the program number, MSIS 040, is the same for both forms.

II.145



Types of Input Forms
- Processing Options
- Table Creation

This concludes the Processing Options Forms. Our next type of input form is the Table Creation Input Forms.

II.146

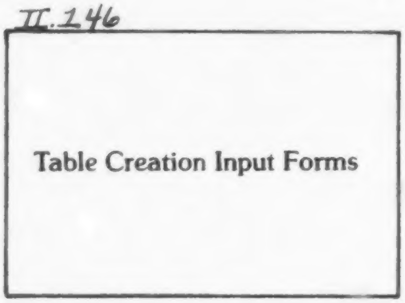


Table Creation Input Forms

The Table Creation Input Forms are used to change the contents of the computer tables. MSIS has five distinct types of table creation forms but they are infrequently used, since tables are seldom changed. Volume III covers these forms in greater detail than they will be discussed here.

II.147

Table Creation Input Forms

- Error Message
- Data Element
- Code Value
- Laboratory
- Regulations

You will note that each of the six computer tables (with the exception of the Public Water Table) has its own creating form. The Public Water Table does not require such a form since the PWSI subsystem creates the table internally and automatically.

II.148

Table Creation Input Forms

- Error Message

The Error Message Form is used to enter the error code and the message it represents into the Error Message Table. The Error Message Forms are used infrequently to add new error codes and their respective messages to the EMT when the computer programs are changed to detect new errors.

II.149

Table Creation Input Forms

- Error Message
- Data Element

The DET Input Form enters a data element number and its corresponding field description in the Data Element Table.

II.150

Table Creation Input Forms
- Error Message
- Data Element
- Code Value

The Code Value Table (CVT) Input Form enters the acceptable values of a data element and their corresponding descriptions in the CVT.

II.151

Table Creation Input Forms
- Error Message
- Data Element
- Code Value
- Laboratory

Strictly for state use, the Laboratory Form allows the state to list those laboratories that have been certified, the expiration date of such certification, the analyses the laboratory is certified to perform and the methods it may use.

II.152

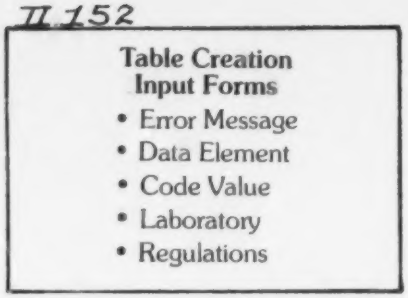


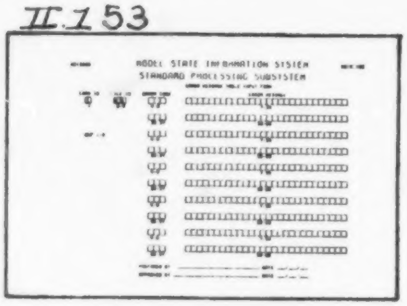
Table Creation Input Forms

- Error Message
- Data Element
- Code Value
- Laboratory
- Regulations

You will recall that the Regulations file contains the computerized version of the regulations and was delivered, complete with the MSIS computer program. It is now the state function to enter their own regulating requirements into the file using the Regulations File Input Forms.

That concludes the Table Creation Input Forms discussion. We will now look briefly at three of the six forms.

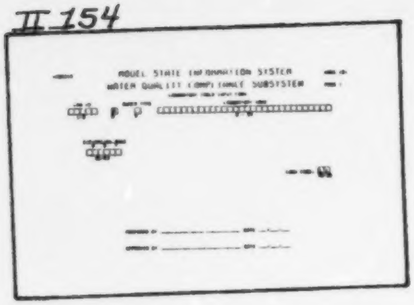
II.153



MODEL STATE INFORMATION SYSTEM
STANDARD PROCESSING SUBSYSTEM

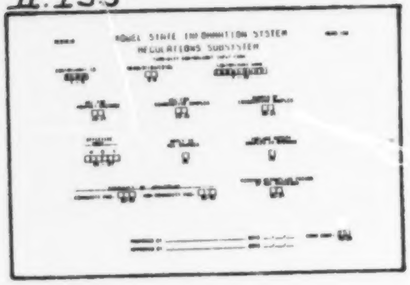
The general input form characteristics are all here: The first line is the MSIS computer system. The second line is the subsystem. The third line is the form name. In the upper left is the program number, and in the upper right is the form number.

II.154



Here is the Laboratory Table Input form. Note the positions 8-37 for the lab name and positions 38-43 for expiration date of certification.

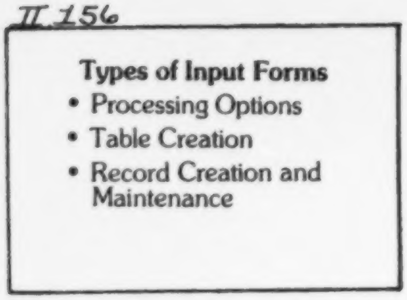
II.155



This is the last Table Creation Form we will look at. There are actually eight separate Regulation File Input Forms available for use. This particular one is the Turbidity Contaminant Input Form.

The other seven input forms in this category are for the other contaminants or special contaminant conditions. Notice the Card Code in the lower right-hand corner of this form. This code, generally found on forms which may be input with other forms, identifies to the computer the type of input form it is reading.

II.156

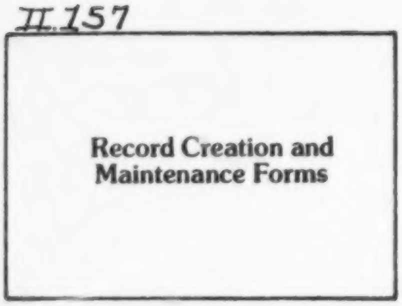


Types of Input Forms

- Processing Options
- Table Creation
- Record Creation and Maintenance

That concludes our discussion of Table Creation Input Forms. For those interested, Volume III contains more detailed information. We will now discuss Record Creation and Maintenance Forms.

II.157



Record Creation and Maintenance Forms

The Record Creation and Maintenance Input Forms, as a group, generally are used to enter public water system information into the computer files.

Since such information is applicable to those subsystems maintaining PWS information, we will find PWSI, WAQC, VAEX, ENAC and OPER subsystems using these forms.

Five forms are found within this category. The fifth form has been omitted and will be shown in the following example.

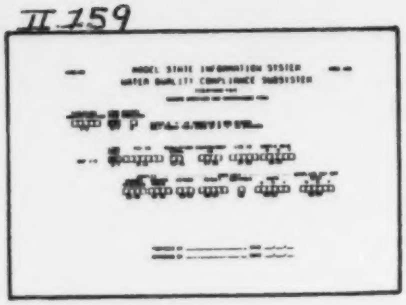
II-158

Record Creation and Maintenance Forms

- Public Water System Inventory
- Variances and Exemptions
- Enforcement Actions
- Operator and Mailing

Although each computer subsystem using PWS information has its own Record Creation and Maintenance Input Form, the forms are quite similar and perform identical functions. As such, they do not warrant separate discussion here. (See Volume III for more detailed information.)

II-159



MODEL STATE INFORMATION SYSTEM
WATER QUALITY COMPLIANCE SUBSYSTEM

The Violations File Record Creation and Maintenance Form is the fifth form. One of the outstanding features of this type of form is the blank for the PWS ID. This field illustrates the common feature of all such forms, that they maintain PWS information on various files. Notice, too, that these forms have card codes; however, they are contained at the beginning of the transcribed information. In this case, more than one different kind of information is on the same form.

That concludes our discussion of Record Creation and Maintenance Forms. See Volume III for more detailed information.

II.160

Types of Input Forms

- Processing Options
- Table Creation
- Record Creation and Maintenance
- Water Quality Transactions

This is our last category of input forms. The Water Quality Transaction Input Forms are the workhorse forms, being used hundreds of times each year to enter analytical results to the Periodic Sample File. There are four separate forms.

II.161

Water Quality Transactions Input Forms

By far the majority of input information will be accomplished with this category of input forms.

II.762

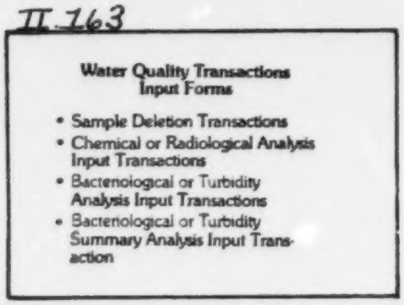
Water Quality Transactions Input Forms

- Sample Deletion Transactions

The Sample Deletion Transactions Form is used to delete information from the Periodic Sample File. Since the Sample and Analysis File is a summary of the Periodic Sample File, a similar form is also available to delete entries from it. In both instances, though, a simple correction is not possible. The entire record has to be removed, corrected and re-entered.

Deletions from the PSF or SAF may be required as a result of errors on input forms or during keypunching. Errors on the SAF may also result from mis-timing in the summarization of analysis data.

II.163

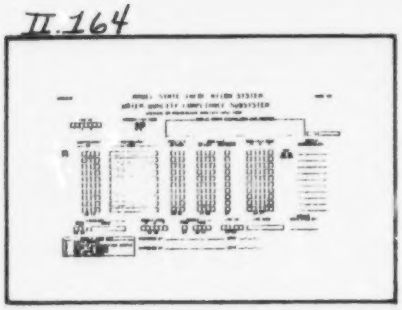


Water Quality Transactions Input Forms

- Sample Deletion Transactions
- Chemical or Radiological Analysis Input Transactions
- Bacteriological or Turbidity Analysis Input Transactions
- Bacteriological or Turbidity Summary Analysis Input Transaction

The remaining three Water Quality Transactions Input Forms are quite similar in format. Although used to input quite different information, all are concerned with sample and analysis data. (See Volume III for more detailed information.)

II.164



A good example of the Water Quality Transactions Input Forms is this Chemical or Radiological Analysis Input Form. Due to the similarity of the information required, the analysis results for both chemical and radiological contaminants can be reported on the same form.

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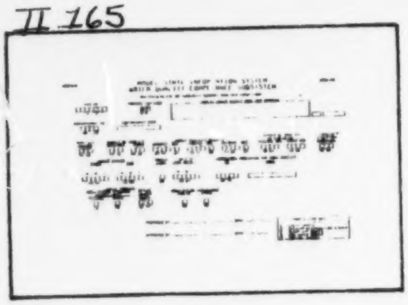
II 165

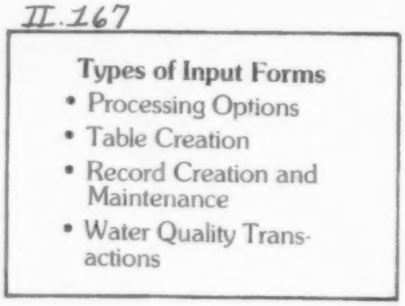


The regulations and therefore MSIS provide for the reporting of bacteriological and turbidity sample and analysis data in summary form. This form provides the capability to enter summary data into MSIS. Notice that there are fields for reporting sampling data, analysis data and violations. (See Volume III for more detailed information on these forms.)

II.166

MSIS
SUMMARY
Railroad
STOP
MSIS

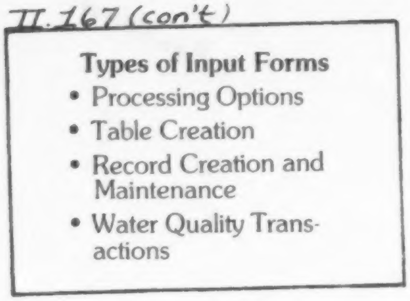
II.167


Types of Input Forms

- Processing Options
- Table Creation
- Record Creation and Maintenance
- Water Quality Transactions

In summary, then, there are four types of input forms and they vary with frequency of use. The workhorse forms are the Water Quality Transactions, which contain analytical results. Also often used are the Processing Options Input Forms, which specify outputs desired. Record Creation Forms are used occasionally; their function is to maintain accurate PWS data. And Table Creation Forms change tables, an infrequent occurrence. Input forms contain user-specified information. These forms really do tell the computer what information to store and how to structure the output.

II.167 (con't)



Types of Input Forms

- Processing Options
- Table Creation
- Record Creation and Maintenance
- Water Quality Transactions

In conclusion, remember that MSIS input forms are used to tell the computer: first, how to process input information; second, what information to enter on the computer tables; third, what information to enter and maintain on files concerned with public water systems; and finally, what water quality information to store on the PSF.

This concludes the information to be presented on input forms. For those interested, Volume III of the slide-cassette training program is concerned with practice on completing key MSIS forms.

II.168

Well, folks, we covered a stretch of pretty dry land there, but there really is gold in them thar hills, and it is worth digging for,

II.169

Review/Exercises

so hit the old workbook!!!

II.170

Refer to: II.2.E1
II.2.A1

You are urged not only to complete the review exercises and check your results, but also to study carefully the actual input forms which you will find in your workbook.

STOP TAPE . . . COMPLETE REVIEW/EXERCISES

II.171

Unit II
Input Forms and
Output Reports

Our second and final topic for Unit II is Output Reports.

Up until this point in the presentation, we have been concerned with how the computer did its work. From now on we are concerned with the results of that work, or the output reports which the computer prepares for our use.

II.172

Output Reports
- Statistical
- Input
- Error
- Informational

As you may recall, output reports were previously defined as information output by the computer in user-readable format. There are four kinds of output reports -- statistical, input, error, and informational. The first three types will be discussed briefly, but the fourth type, informational reports, will be covered in greater detail.

II.173

Output Reports
- Statistical

Statistical reports result from the updating of a file or selection of a report and merely present update or selection information. This information is also relevant to the data processors and for that reason, depending on local procedures, may be kept by them.

II.174

Output Reports
- Statistical
- Input

An input report also results from an update run; however, in this case it is not necessarily the update of a file. This report just displays what was input, (thus the name input report) and provides a means of verifying that the computer has received and stored the input information.

II.175

Output Reports
- Statistical
- Input
- Error

Certainly, with every input or update there is the possibility of an error; consequently, there are error reports. If an error is made in completing an input form, the run will stop and an error message will be output. In addition, the Standard Error Report may result from faulty input data to an update run. Error reports are dealt with in more detail in Volume III.

II.176

Output Reports
- Statistical
- Input
- Error
- Informational

There are about forty informational reports.

II.177

Output Reports
- Regulations
- PWS Comprehensive Listing
- PWS Condensed Reports
- MSIS History Report
- Compliance Summary Report
- Chemical Sampling Schedule Reports

These are six representative examples of output reports. Each will be discussed separately.

II.178

Output Reports
- Regulations

The Regulations Report is a complete printout of the contents of the Regulations File. In one sense this report is of limited use since only minor changes would be expected in the regulations over time. However, the report does allow the user to verify the contents of the file and in this sense is required.

II 179

Output Reports

- Regulations
- PWS Comprehensive Listing

The PWS Comprehensive Listing is another complete printout of the file contents; in this case, the Public Water File. This informational report contains the complete public water system information and, as a consequence, is large and bulky. There are three separate informational reports that will probably prove more useful. They are shown on the following slide.

II.180

Output Reports
- Regulations
- PWS Comprehensive Listing
- PWS Condensed Reports

The Condensed Report contains mailing information and information about plant location, owner type, and population served.

The PWS Production and Capacity Data Report contains statistical information about the public water supply such as the population served, number of service connections, average daily production, and storage capacity.

PWS-State Discretionary Data Report includes any special conditions that the state may give to a PWS as a result of an option in the regulations, such as more frequent sampling for man-made radioactivity or conditions of variances or exemptions.

II.181

Output Reports
- Regulations
- PWS Comprehensive Listing
- PWS Condensed Reports
- MSIS History Report

The MSIS History Report is an informational report which contains history of VEF, EAF, OMF, and VIF transactions and as such provides the necessary audit trail for the state.

II.182

Output Reports

- Regulations
- PWS Comprehensive Listing
- PWS Condensed Reports
- MSIS History Report
- Compliance Summary Report

The Compliance Summary Report is a record of the violations incurred by the states' Public Water Systems.

IV.183

Output Reports

- Regulations
- PWS Comprehensive Listing
- PWS Condensed Reports
- MSIS History Report
- Compliance Summary Report
- Chemical Sampling Schedule Reports

Truly a working report, the Chemical Sampling Schedule Report not only indicates the current required sampling schedule for state public water systems but also acts as a turn-around document. That is, the state can take this output report, request public water supplies to enter additional information on the report, and upon its return, use the report as an input form to enter the new information into the computer files.

IV.184

MSIS
SUMMARY
Railroad
MSIS
STOP

In summary, we have discussed six representative informational reports. Remember that this type of report supplies all the vital information from MSIS. The User's Manual gives complete information on all reports as well as other aspects of MSIS, and should be referred to for optimum use of the system.

II.185

Output Reports

- Regulations
- PWS Comprehensive Listing
- PWS Condensed Reports
- MSIS History Report
- Compliance Summary Report
- Chemical Sampling Schedule Reports

Look again at the six informational reports discussed. The Regulations Report provides a hard copy of the regulations; the Comprehensive Listing provides all the Public Water Systems information; the three condensed reports supply specialized PWS information; the MSIS History Report provides an audit trail of VEF, EAF, OMF, and VIF transactions; the Compliance Summary Report is a record of PWS violations; and the con't II.18.3

Output Reports

- Regulations
- PWS Comprehensive Listing
- PWS Condensed Reports
- MSIS History Report
- Compliance Summary Report
- Chemical Sampling Schedule Reports

Chemical Sampling Schedule Report not only depicts current sampling schedules but also may be used as a turn-around document.

Finally, remember that the User's Manual contains a wealth of detail on informational reports as well as all other user aspects of MSIS.

I.186

Volume II
Course Summary

That concludes the Volume II material. Let me briefly review the major points covered. Following a brief introduction to data processing terminology, this second course of the MSIS Training Program has covered several aspects of the Model State Information System's nine subsystems:

. Subsystem functions.
. Subsystem interrelations.
. How federal reporting requirements are met.
. Tables and inputting data to them.
. Files and inputting data to them.
. Specifying outputs.
. Printed reports.

By using the exercises for self-measurement, the viewer should have attained this course's behavioral objectives, and hence its goal of a general understanding of the MSIS Subsystems.

II.187

Well, folks, that finishes Volume II, MSIS Subsystems, in its entirety. I know it was a long and sometimes tedious ride, but trust it had its interesting aspects and will prove useful to you back on the job. Perhaps I will see you again in Volume III or IV.

II.188

Review/Exercises

Turn now to your workbook for the review exercise.

II.189

Refer to: II.2.E2
II.2.A2

STOP TAPE . . . COMPLETE REVIEW/EXERCISES

II.190

Post Test

Remember the post-test for the entire volume.

II.191

Refer to: I.2.T1

Change tray and cassette

II.1.T1
21T1
(1-4)

PRE-TEST

MSIS SUBSYSTEMS

Name: ______________________ (5-30) Postal Code ______ (31-2) Date ____/____/____ Month Day Year (33-8)

1. Circle the purpose of the Safe Drinking Water Act:

   (39) a. Monitor drinking water quality
   (40) b. Report to the federal government drinking water quality
   (41) c. Assure the public is provided with safe drinking water

2. Circle the three phrases which describe a batch computer system:

   (42) a. On-line
   (43) b. Accumulates data
   (44) c. Instantaneous sending of data
   (45) d. Keypunch cards
   (46) e. After-the-fact

3. How many subsystems does MSIS have? (47)______________________

4. Match the types of input forms with their function:
   (More than one function may be appropriate)

Form		Function
a. Processing option	(48)	___ Enter data to MSIS tables
b. Table creation	(49)	___ Enters PWS-related data to files
c. Record creation & maintenance	(50)	___ Enters sample and analysis data
d. Water quality transactions	(51)	___ Enables the user to specify needed reports
	(52)	___ Enables the user to specify needed PWS listing

5. Circle the correct answer. REGS, MSIS, and SRVY subsystems do not have record creation and maintenance forms because:

   (53) a. they don't have any files
   (54) b. they only print reports
   (55) c. they don't maintain PWS data

6. Match the four kinds of output reports with the type of information each supplies:

Report

a. statistical
b. error
c. input
d. informational

Information

(56) ____What violations occurred yesterday
(57) ____Number of PWSs on the Public Water File
(58) ____What violations occurred last month
(59) ____Is the MCL for arsenic on the Regulations File correct?
(60) ____Why didn't I get the report I requested?

7. Match each subsystem with its appropriate function:

Subsystem

a. Regulations
b. Enforcement Actions
c. Water Quality Compliance
d. Public Water System Inventory
e. Variances & Exemptions
f. Standard Processing

Function

(61) ____Automatically translates the PWS Inventory File into MSIS format
(62) ____Maintains data on PWS's having special conditions
(63) ____Checks analyses of water quality to see if authorized methods were used
(64) ____Performs common functions for other subsystems
(65) ____Contains the criteria used to determine violations
(66) ____Keeps information on compliance actions

8. Circle T (True) or F (False) for the following statements:

T F (67) MSIS is a subsystem name as well as the system name.

T F (68) There are ten subsystems in MSIS.

T F (69) FEDR creates printed reports for the federal government.

T F (70) A summary of State enforcement actions is reported annually.

T F (71) Tables and files are both accessible to the user for selecting reports.

T F (72) Water quality transaction input forms are used to enter analytical results.

T F (73) Any laboratory may submit analysis results.

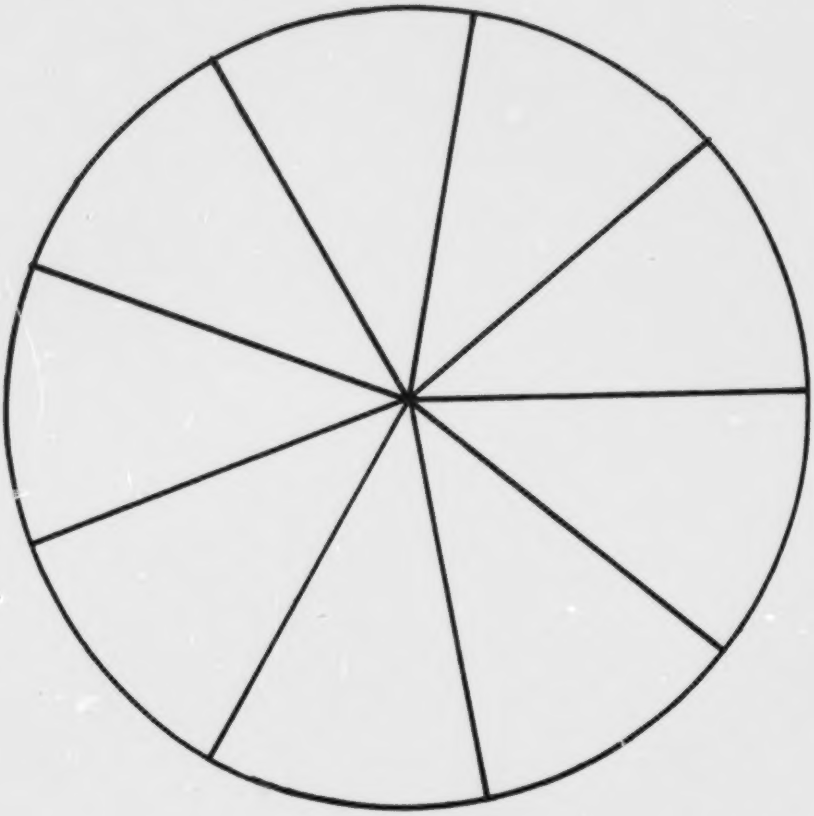
9. Rate your current level of knowledge about MSIS:

(74) None
(75) A little
(76) Some
(77) Quite a bit
(78) A great deal

EXERCISES

MSIS Subsystems

1. Name the nine MSIS subsystems, placing a name in each section of the circle.



II.1.E2

MSIS Subsystems

Match the subsystems with their functions, by drawing lines.

Subsystems

PWS Inventory (PWSI)
Regulations (REGS)
Operator and Mailing (OPER)
Variances and Exemptions
Enforcement Actions (ENAC)
Sanitary Survey (SRVY)
Standard Processing (MSIS)
Federal Reporting (FEDR)
Water Quality Compliance (WAQC)

Functions

1. Gives the computer information to determine violations.
2. Maintains a list of certain distributors of water.
3. Selects public water systems that need a thorough examination.
4. Maintains the addresses of persons interested in water quality.
5. Maintains the information on PWSs that have special conditions.
6. Maintains information on the activities ensuring compliance.
7. Creates special files of interest to EPA.
8. Records samples, analyses, and violations.
9. Performs common functions among subsystems.

MSIS Files

1. List the files which contain various kinds of information on PWSs.

____________________ ____________________

____________________ ____________________

____________________ ____________________

____________________ ____________________

2. List the files which contain information on water quality.

____________________ ____________________

____________________ ____________________

____________________ ____________________

____________________ ____________________

3. List the files which contain information on the history of transactions.

____________________ ____________________

____________________ ____________________

____________________ ____________________

____________________ ____________________

II.1.E4

MSIS Tables

1. List the six tables.

____

____

____

____

____

____

2. Match the table with the subsystem that creates it.

REGS
PWSI
WAQC
FEDR
VAEX
ENAC
SRVY
OPER
MSIS

MSIS Tables

1. Name the table which performs the function stated.

   1. Allows the computer to inform the user of problems it encounters.

      ____

   2. Provides the computer with the information on what is acceptable for a particular field. ______________________________

   3. Supplies the computer with the location of particular information that is referred to by the user. ______________________________

   4. Supplies the computer with abbreviated information on Public Water Systems. ______________________

   5. Provides the computer with the information on acceptable analyzers of sample data. ______________________________

   6. Provides the computer with the information necessary to determine MCL and sampling violations and to set up sampling schedules.

      ____

II.2.E1

Input Forms

1. List the four input form categories.
2. Specify two input forms per category.

Output Reports

1. Specify the kind of output report that will supply the information to answer the question.
   1. How many PWSs on my Public Water File (PWF)? ____________________
   2. Is the MCL for arsenic on the RGF correct? ____________________
   3. Why didn't I get the report I requested? ____________________
   4. What violations occurred last month? ____________________
   5. Who should be sending in sample analyses? ____________________
   6. What are the acceptable values for "Operator Type"? ____________
   7. What was the percentage increase in our mailing list? __________
   8. What data do I need to complete the VEF for the last update? ______
      ____

2. Which kind of report is probably the most important to the user?

   ____

3. State the special characteristic of the reports prepared by the FEDR subsystem for submission to the federal government. ________________

   ____

   ____

II.3.E1

User's Manual

List by subsystem all the possible informational reports that may be produced using MSIS.

Subsystem	Informational Reports

Subsystem Informational Reports

User's Manual

Prepare the appropriate input forms to select all Public Water Systems that are required by the federal regulations to monitor man-made racioactivity, i.e., all community PWSs using surface water sources and serving more than 100,000 persons. At the same time select all public water systems that are required to perform quarterly monitoring for gross beta particle and iodine-131 radioactivity and annual monitoring for strontium-90 and tritium, i.e., all community PWSs utilizing waters contaminated by effluents from nuclear facilities.

PWSI020.080

MODEL STATE INFORMATION SYSTEM

PWS1.107

PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

SELECTION FORM - DEFINITION OF DATA ELEMENTS

CARD ID	DATA ELEMENT MNEMONIC NAME	DATA ELEMENT COMPARATIVE VALUE	DATA ELEMENT LOGIC ID NO.
S E L 1			
1-4	5-14	15-29	30-31
DUP 1 - 4			
.			
.			
.			
.			
.			
.			
.			
.			
.			
.			
.			

II.3.E2

PREPARED BY ______________________ DATE __/__/__

APPROVED BY ______________________ DATE __/__/__

PWSI020,080 PWS1.107

MODEL STATE INFORMATION SYSTEM
PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

SELECTION FORM - DEFINITION OF DATA ELEMENTS

CARD ID	DATA ELEMENT MNEMONIC NAME	DATA ELEMENT COMPARATIVE VALUE	DATA ELEMENT LOGIC ID NO.
S E L 1 1-4	☐☐☐☐☐☐☐☐☐☐ 5-14	☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐ 15-29	☐☐ 30-31
DUP 1 - 4	☐☐☐☐☐☐☐☐☐☐	☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐	☐☐
.	☐☐☐☐☐☐☐☐☐☐	☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐	☐☐
.	☐☐☐☐☐☐☐☐☐☐	☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐	☐☐
.	☐☐☐☐☐☐☐☐☐☐	☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐	☐☐
.	☐☐☐☐☐☐☐☐☐☐	☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐	☐☐
.	☐☐☐☐☐☐☐☐☐☐	☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐	☐☐
.	☐☐☐☐☐☐☐☐☐☐	☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐	☐☐
.	☐☐☐☐☐☐☐☐☐☐	☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐	☐☐
.	☐☐☐☐☐☐☐☐☐☐	☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐	☐☐
.	☐☐☐☐☐☐☐☐☐☐	☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐	☐☐
.	☐☐☐☐☐☐☐☐☐☐	☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐	☐☐
.	☐☐☐☐☐☐☐☐☐☐	☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐	☐☐

PREPARED BY ______________________________ DATE __/__/__

APPROVED BY ______________________________ DATE __/__/__

MODEL STATE INFORMATION SYSTEM

PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

SELECTION FORM - DEFINITION OF LOGIC FOR SELECTION

RELATION SYMBOLS: LT = LESS THAN
EQ = EQUAL
GT = GREATER THAN
NL = NOT LESS THAN
NG = NOT GREATER THAN
NX = NOT EXISTS (EMPTY)

CARD ID	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL
S E L 2 1-4	01	☐☐ 5-6	02	☐☐ 7-8	03	☐☐ 9-10	04	☐☐ 11-12
	05	☐☐ 13-14	06	☐☐ 15-16	07	☐☐ 17-18	08	☐☐ 19-20
	09	☐☐ 21-22	10	☐☐ 23-24	11	☐☐ 25-26	12	☐☐ 27-28
	13	☐☐ 29-30	14	☐☐ 31-32	15	☐☐ 33-34	16	☐☐ 35-36
	17	☐☐ 37-38	18	☐☐ 39-40	19	☐☐ 41-42	20	☐☐ 43-44
	21	☐☐ 45-46	22	☐☐ 47-48	23	☐☐ 49-50	24	☐☐ 51-52
	25	☐☐ 53-54	26	☐☐ 55-56	27	☐☐ 57-58	28	☐☐ 59-60
	29	☐☐ 61-62	30	☐☐ 63-64	31	☐☐ 65-66	32	☐☐ 67-68
	33	☐☐ 69-70	34	☐☐ 71-72	35	☐☐ 73-74		

PREPARED BY ______________________ DATE __/__/__

APPROVED BY ______________________ DATE __/__/__

PWSI020.080

PWSI.108

MODEL STATE INFORMATION SYSTEM
PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

SELECTION FORM - DEFINITION OF LOGIC FOR SELECTION

RELATION SYMBOLS:
LT = LESS THAN
EQ = EQUAL
GT = GREATER THAN
NL = NOT LESS THAN
NG = NOT GREATER THAN
NX = NOT EXISTS (EMPTY)

CARD ID	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL
S E L 2 1-4	01	☐☐ 5-6	02	☐☐ 7-8	03	☐☐ 9-10	04	☐☐ 11-12
	05	☐☐ 13-14	06	☐☐ 15-16	07	☐☐ 17-18	08	☐☐ 19-20
	09	☐☐ 21-22	10	☐☐ 23-24	11	☐☐ 25-26	12	☐☐ 27-28
	13	☐☐ 29-30	14	☐☐ 31-32	15	☐☐ 33-34	16	☐☐ 35-36
	17	☐☐ 37-38	18	☐☐ 39-40	19	☐☐ 41-42	20	☐☐ 43-44
	21	☐☐ 45-46	22	☐☐ 47-48	23	☐☐ 49-50	24	☐☐ 51-52
	25	☐☐ 53-54	26	☐☐ 55-56	27	☐☐ 57-58	28	☐☐ 59-60
	29	☐☐ 61-62	30	☐☐ 63-64	31	☐☐ 65-66	32	☐☐ 67-68
	33	☐☐ 69-70	34	☐☐ 71-72	35	☐☐ 73-74		

PREPARED BY ______________________ DATE __/__/__

APPROVED BY ______________________ DATE __/__/__

II.3.E2

MODEL STATE INFORMATION SYSTEM

DATA ELEMENT DESCRIPTION

DATE: 4/15/76	**VERSION:** 1	**REQUESTED BY EPA TO BE REPORTED ANNUALLY:** Yes	**MANDATED FOR MSIS PROCESSING REQUIREMENTS:** Yes

DATA ELEMENT

CATALOGUE NO.:	**MNEMONIC NAME:** PW-PL-POPL	**PROGRAM NAME:** PWF-PLANT-POPULATION-SERVED

DESCRIPTION AND USE: Total population obtaining water from this system - not to include the population of consecutive water systems.	**DATA TYPE:** A/N **PICTURE:** X(9)

SOURCE(S): As determined at input time and verified by sanitary survey.

SUBSYSTEMS:	**PWSI**	**REGS**	**WAQC**	**FEDR**	**VAEX**	**ENAC**	**SRVY**	**OPER**	**MSIS**
INPUT TO:	X		X						
OUTPUT OF:	X		X						

ACCEPTABLE VALUES:

Any number greater than zero.

EDIT CRITERIA:

Must be numeric and greater than zero.

ADDITIONAL COMMENTS:

In the federal regulations, it must be at least 25, but state regulations may define a PWS as one serving less than 25 people.

MODEL STATE INFORMATION SYSTEM

DATA ELEMENT DESCRIPTION

DATE: 4/15/76	**VERSION:** 1	**REQUESTED BY EPA TO BE REPORTED ANNUALLY:** Yes	**MANDATED FOR MSIS PROCESSING REQUIREMENTS:** Yes

DATA ELEMENT

CATALOGUE NO.:

MNEMONIC NAME: PW-PL-SOCO

PROGRAM NAME: PWF-PLANT-SOURCE-CODE

DESCRIPTION AND USE: Identifying the type of water source. Sampling frequency requirement depends on type of source. Even if only one source, out of many, is surface water then the PWS is classified as using surface water.

DATA TYPE: A/N

PICTURE: X(1)

SOURCE(S): Entered on input forms. Determined from PWS documents.

SUBSYSTEMS:	**PWSI**	**REGS**	**WAQC**	**FEDR**	**VAEX**	**ENAC**	**SRVY**	**OPER**	**MSIS**
INPUT TO:	X		X	X			X		
OUTPUT OF:	X		X	X			X		

ACCEPTABLE VALUES:

S - Surface Water

G - Ground Water

P - Purchased Water (treated water)

D - Distribution System

EDIT CRITERIA:

PWSIF - Must have the values S, U, or P.

Other - Must have the values S, U, P, or D.

ADDITIONAL COMMENTS:

None

MODEL STATE INFORMATION SYSTEM

DATA ELEMENT DESCRIPTION

DATE: 1/7/76	**VERSION:**	**REQUESTED BY EPA TO BE REPORTED ANNUALLY:** Yes	**MANDATED FOR MSIS PROCESSING REQUIREMENTS:** Yes

DATA ELEMENT

CATALOGUE NO.:	**MNEMONIC NAME:** PW-PL-TYPE	**PROGRAM NAME:** PWF-PLANT-TYPE

DESCRIPTION AND USE: A flag indicating if this PWS is a community or non-community PWS.

DATA TYPE: A/N

PICTURE: X(1)

SOURCE(S): Determined by field inspectors at time of PWS record creation, according to federal regulations and PWS size and service area characteristics.

SUBSYSTEMS:	**PWSI**	**REGS**	**WAQC**	**FEDR**	**VAEX**	**ENAC**	**SRVY**	**OPER**	**MSIS**
INPUT TO:	X	X	X				X		
OUTPUT OF:	X	X	X				X		

ACCEPTABLE VALUES:

C - community
N - non-community

EDIT CRITERIA:

Must be "C" or "N".

ADDITIONAL COMMENTS:

None

MODEL STATE INFORMATION SYSTEM

II.3.E2

DATA ELEMENT DESCRIPTION

DATE:	**VERSION:**	**REQUESTED BY EPA TO BE REPORTED ANNUALLY:** No	**MANDATED FOR MSIS PROCESSING REQUIREMENTS:** No

DATA ELEMENT

CATALOGUE NO.:	**MNEMONIC NAME:** PW-S-NUCL	**PROGRAM NAME:** PWF-STATE-NUCLEAR FACILITY

DESCRIPTION AND USE: A flag to indicate if contamination has been caused by a nuclear facility.	**DATA TYPE:** A/N **PICTURE:** X (1)

SOURCE(S):
Input transactions

SUBSYSTEMS:	**PWSI**	**REGS**	**WAQC**	**FEDR**	**VAEX**	**ENAC**	**SRVY**	**OPER**	**MSIS**
INPUT TO:	X								
OUTPUT OF:	X								

ACCEPTABLE VALUES:

N = No
Y = Yes

EDIT CRITERIA:

Must be Y or N

ADDITIONAL COMMENTS:

None

User's Manual

List the Standard Error Message you would expect from each of the entries on the following SORT form. (List only one error message per incorrect entry. If an entry will not produce an error message, leave the answer blank empty.)

User's Manual

Page 1

Position	Standard Error Message (if any)
5-6	
7-16	
17	
18-19	
20-29	
30	
31-32	
33-42	
43	
44-45	
46-55	
56	
57-58	
59-68	
69	

User's Manual

Page 7

Position

Standard Error Message (if any)

5-6 ______________________________

7-16 ______________________________

17 ______________________________

18-19 ______________________________

20-29 ______________________________

30 ______________________________

31-32 ______________________________

33-42 ______________________________

43 ______________________________

44-45 ______________________________

46-55 ______________________________

56 ______________________________

57-58 ______________________________

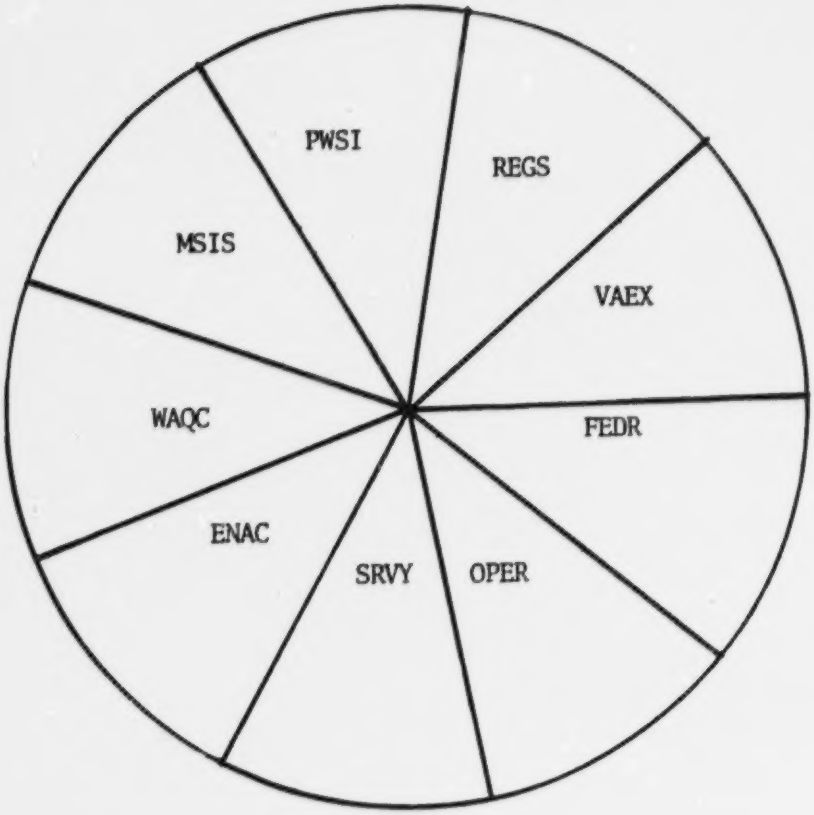
59-68 ______________________________

69 ______________________________

ANSWERS

MSIS Subsystems

1. Name the nine MSIS subsystems, placing a name in each section of the circle.


PWSI
REGS
MSIS
VAEX
WAQC
FEDR
ENAC
SRVY
OPER

MSIS Subsystems

Match the subsystems with their functions.

Subsystems	Functions
PWS Inventory (PWSI)	1. Gives the computer information to determine violations.
	2. Maintains a list of certain distributors of water.
Regulations (REGS)	3. Selects public water systems that need a thorough examination.
Operator and Mailing (OPER)	4. Maintains the addresses of persons interested in water quality.
Variances and Exemptions	5. Maintains the information on PWSs that have special conditions.
Enforcement Actions (ENAC)	6. Maintains information on the activities ensuring compliance.
Sanitary Survey (SRVY)	
Standard Processing (MSIS)	7. Creates special files of interest to EPA.
Federal Reporting (FEDR)	
	8. Records samples, analyses, and violations.
Water Quality Compliance (WAQC)	9. Performs common functions among subsystems.

MSIS Files

1. List the files which contain various kinds of information on PWSs.

   PWF, Public Water File
   VIF, Violations File
   VEF, Variances and Exemption File
   DVF, Deviations File
   EAF, Enforcement Actions File
   OMF, Operator and Mailing File

2. List the files which contain information on water quality.

   SAF, Sample and Analysis File
   PSF, Periodic Sample File

3. List the files which contain information on the history of transactions.

   PHF, Public History File
   SHF, Standard History File

II.1.A4

MSIS Tables

1. List the six tables.

2. Match the table with the subsystem that creates it.

EMT, Error Message Table

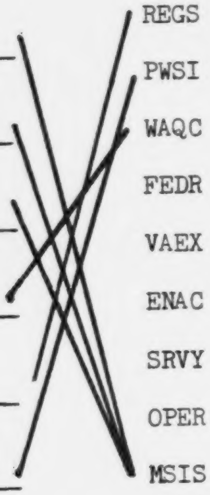
CVT, Code Value Table

DET, Data Element Table

LBT, Laboratory Table

RGF, Regulations File

PWT, Public Water Table


REGS
PWSI
WAQC
FEDR
VAEX
ENAC
SRVY
OPER
MSIS

MSIS Tables

1. Name the table which performs the function stated.

   1. Allows the computer to inform the user of problems it encounters. EMT, Error Message Table
   2. Provides the computer with the information on what is acceptable for a particular field. CVT, Code Value Table
   3. Supplies the computer with the location of particular information that is referred to by the user. DET, Data Element Table
   4. Supplies the computer with abbreviated information on Public Water Systems. PWT, Public Water Table
   5. Provides the computer with the information on acceptable analyzers of sample data. LBT, Laboratory Table
   6. Provides the computer with the information necessary to determine MCL and sampling violations and to set up sampling schedules. RGF, Regulations File

Input Forms

1. List the four input form categories.	2. Specify two input forms per category.
Processing Option	PROC, SORT, SEL1, SEL2
Table Creation	EMT, CVT, DET, LBT, RGF
Record Creation and Maintenance	VAEX, ENAC, OPER, PWSI, WAQC
Water Quality Transactions	Bacteriological and Turbidity Chemical and Radiological Bacteriological and Turbidity Summary Sample Deletion Transactions - PSF Sample Deletion Transactions - SAF

Output Reports

1. Specify the kind of output report that will supply the information to answer the questions.
    1. How many PWSs on my Public Water File (PWF)? Statistical
    2. Is the MCL for arsenic on the RGF correct? Input
    3. Why didn't I get the report I requested? Error
    4. What violations occurred last month? Informational
    5. Who should be sending in sample analyses? Informational
    6. What are the acceptable values for "Operator Type"? Input
    7. What was the percentage increase in our mailing list? Statistical
    8. What data do I need to complete the VEF for the last update? Error
2. Which kind of report is probably the most important to the user?

    Informational

II.3.A1

User's Manual

List by subsystem all the possible informational reports that may be produced using MSIS.

Subsystem	Informational Reports
PWSI	1. PWSI.300 PWSI.308 Condensed
	2. PWSI.302 PWSI.314 Production and Capacity Data
	3. PWSI.301 PWSI.315 State Discretionary Data
	4. PWSI.303 Comprehensive
	5. PWSI.317 Public History File Selection
	6. PWSI.306 Public History File Purge
WAQC	1. WAQC.326 Turbidity Warnings
	2. WAQC.326 Inorganic Chemical Warnings
	3. WAQC.326 Organic Chemical Warnings
	4. WAQC.326 Bacteriological Warnings
	5. WAQC.326 Gross Alpha Warnings
	6. WAQC.326 Gross Beta Warnings
	7. WAQC.306 Chemical MCL Violations
	8. WAQC.309 Radiological MCL Violations
	9. WAQC.307 Bacteriological MCL Violations
	10. WAQC.308 Turbidity MCL Violations
	11. WAQC.310 Chemical Sampling Violations
	12. WAQC.313 Radiological Sampling Violations
	13. WAQC.311 Bacteriological Sampling Violations
	14. WAQC.312 Turbidity Sampling Violations
	15. WAQC.325 Operation Report Violations
	16. WAQC.320 Compliance Summary
	17. WAQC.315 Sample and Analysis Purge
	18. WAQC.321 Summary of Chemical Analysis
	19. WAQC.322 Summary of Radiological Analysis
	20. WAQC.323 Summary of Bacteriological Analysis
	21. WAQC.324 Summary of Turbidity Analysis

Subsystem	Informational Reports
WAQC (con't)	22. WAQC.329 Mailing Labels
	23. WAQC.330 Monthly Operations Report Update Form
	24. WAQC.319 Chemical/Radiological Scheduling
MSIS	1. MSIS.305 Purge of the Standard History File
	2. MSIS.307 Selected SHF
VAEX	1. VAEX.302 VAEX.303 Compliance Schedule
	2. VAEX.304 VAEX.305 Compliance in ARRears
	3. VAEX.306 Condensed
	4. VAEX.307 VAEX.308 Case History
ENAC	1. ENAC.300 Case History
	2. ENAC.301 Condensed
SRVY	1. SRVY.300 Priority
	2. SRVY.301 Schedule
OPER	1. OPER.300 Operators Activity
	2. OPER.301 Certified Operators
	3. OPER.303 Addressees Activity
	4. OPER.302 Mailing Distribution
	5. OPER.304 Mailing Labels

PWS1020.080 PWS1.107

MODEL STATE INFORMATION SYSTEM

PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

SELECTION FORM - DEFINITION OF DATA ELEMENTS

CARD ID 1-4	DATA ELEMENT MNEMONIC NAME 5-14	DATA ELEMENT COMPARATIVE VALUE 15-29	DATA ELEMENT LOGIC ID NO. 30-31
SEL1	PW-PL-POPL	1000000	01
DUP 1 - 4	PW-PL-SOCO	S	02
.	PW-PL-TYPE	C	03
.	PW-S-NUCL	Y	04
.			
.			
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PREPARED BY ______________________ DATE ___/___/___

APPROVED BY ______________________ DATE ___/___/___

PWSI020.080 PWSI.108

MODEL STATE INFORMATION SYSTEM

PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

SELECTION FORM - DEFINITION OF LOGIC FOR SELECTION

RELATION SYMBOLS:
LT = LESS THAN
EQ = EQUAL
GT = GREATER THAN
NL = NOT LESS THAN
NG = NOT GREATER THAN
NX = NOT EXISTS (EMPTY)

CARD ID	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL
S E L 2 1-4	01	GT 5-6	02	EQ 7-8	03	EQ 9-10	04	☐☐ 11-12
	05	☐☐ 13-14	06	☐☐ 15-16	07	☐☐ 17-18	08	☐☐ 19-20
	09	☐☐ 21-22	10	☐☐ 23-24	11	☐☐ 25-26	12	☐☐ 27-28
	13	☐☐ 29-30	14	☐☐ 31-32	15	☐☐ 33-34	16	☐☐ 35-36
	17	☐☐ 37-38	18	☐☐ 39-40	19	☐☐ 41-42	20	☐☐ 43-44
	21	☐☐ 45-46	22	☐☐ 47-48	23	☐☐ 49-50	24	☐☐ 51-52
	25	☐☐ 53-54	26	☐☐ 55-56	27	☐☐ 57-58	28	☐☐ 59-60
	29	☐☐ 61-62	30	☐☐ 63-64	31	☐☐ 65-66	32	☐☐ 67-68
	33	☐☐ 69-70	34	☐☐ 71-72	35	☐☐ 73-74		

PREPARED BY ______________________________ DATE ___/___/___

APPROVED BY ______________________________ DATE ___/___/___

PWS1020,080 PWSI

MODEL STATE INFORMATION SYSTEM

PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

SELECTION FORM - DEFINITION OF LOGIC FOR SELECTION

RELATION SYMBOLS:

LT = LESS THAN
EQ = EQUAL
GT = GREATER THAN
NL = NOT LESS THAN
NG = NOT GREATER THAN
NX = NOT EXISTS(EMPTY)

CARD ID	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL	DATA ELEMENT LOGIC ID NO.	RELATION SYMBOL
S E L 2 1-4	01	☐☐ 5-6	02	☐☐ 7-8	03	E Q 9-10	04	E Q 11-12
	05	☐☐ 13-14	06	☐☐ 15-16	07	☐☐ 17-18	08	☐☐ 19-20
	09	☐☐ 21-22	10	☐☐ 23-24	11	☐☐ 25-26	12	☐☐ 27-28
	13	☐☐ 29-30	14	☐☐ 31-32	15	☐☐ 33-34	16	☐☐ 35-36
	17	☐☐ 37-38	18	☐☐ 39-40	19	☐☐ 41-42	20	☐☐ 43-44
	21	☐☐ 45-46	22	☐☐ 47-48	23	☐☐ 49-50	24	☐☐ 51-52
	25	☐☐ 53-54	26	☐☐ 55-56	27	☐☐ 57-58	28	☐☐ 59-60
	29	☐☐ 61-62	30	☐☐ 63-64	31	☐☐ 65-66	32	☐☐ 67-68
	33	☐☐ 69-70	34	☐☐ 71-72	35	☐☐ 73-74		

PREPARED BY ______________________________ DATE ___/___/___

APPROVED BY ______________________________ DATE ___/___/___

Page 1

Positions	
5-6	Sort Sequence field not numeric
7-16	Sort option mnemonic name is invalid
17	
18-19	
20-29	Sort option mnemonic name is invalid
30	
31-32	
33-42	
43	
44-45	Non-consecutive sort sequence
46-55	Sort option mnemonic name is invalid
56	
57-58	
59-68	
69	

Page 2

Positions	
5-6	Sort sequence fields have the same sequence number
7-16	
17	Sort mode is not A or D
18-19	Non-consecutive sort sequence values
20-29	Maximum sort key size has been exceeded
30	
31-32	Non-consecutive sort sequence value
33-42	
43	
44-45	Sort sequence field not numeric
46-55	Sort option mnemonic name is invalid
56	
57-58	Sort sequence number greater than 10
59-68	Sort option mnemonic name is invalid
69	Sort mode is not A or D

II.2.T1
22T1
(1-4)

POST-TEST

MSIS SUBSYSTEMS

Name: ______________________________ Postal Code ______ Date ____/____/____
(5-30) (31-2) Month Day Year
(33-8)

1. Circle the purpose of the Safe Drinking Water Act:

(39) a. Monitor drinking water quality
(40) b. Report to the federal government drinking water quality
(41) c. Assure the public is provided with safe drinking water

2. Circle the three phrases which describe a batch computer system:

(42) a. On-line
(43) b. Accumulates data
(44) c. Instantaneous sending of data
(45) d. Keypunch cards
(46) e. After-the-fact

3. How many subsystems does MSIS have? (47)______________________________

4. Match the types of input forms with their function:
(More than one function may be appropriate)

Form		Function
a. Processing option	(48)	____Enter data to MSIS tables
b. Table creation	(49)	____Enters PWS-related data to files
c. Record creation & maintenance	(50)	____Enters sample and analysis data
d. Water quality transactions	(51)	____Enables the user to specify needed reports
	(52)	____Enables the user to specify needed PWS listing

5. Circle the correct answer. REGS, MSIS, and SRVY subsystems do not have record creation and maintenance forms because:

(53) a. they don't have any files
(54) b. they only print reports
(55) c. they don't maintain PWS data

6. Match the four kinds of output reports with the type of information each supplies:

Report

a. statistical
b. error
c. input
d. informational

Information

(56) ____What violations occurred yesterday
(57) ____Number of PWSs on the Public Water File
(58) ____What violations occurred last month
(59) ____Is the MCL for arsenic on the Regulations File correct?
(60) ____Why didn't I get the report I requested?

7. Match each subsystem with its appropriate function:

Subsystem

a. Regulations
b. Enforcement Actions
c. Water Quality Compliance
d. Public Water System Inventory
e. Variances & Exemptions
f. Standard Processing

Function

(61) ____Automatically translates the PWS Inventory File into MSIS format
(62) ____Maintains data on PWS's having special conditions
(63) ____Checks analyses of water quality to see if authorized methods were used
(64) ____Performs common functions for other subsystems
(65) ____Contains the criteria used to determine violations
(66) ____Keeps information on compliance actions

8. Circle T (True) or F (False) for the following statements:

T F (67) MSIS is a subsystem name as well as the system name.

T F (68) There are ten subsystems in MSIS.

T F (69) FEDR creates printed reports for the federal government.

T F (70) A summary of State enforcement actions is reported annually.

T F (71) Tables and files are both accessible to the user for selecting reports.

T F Water quality transaction input forms are used to enter
(72) analytical results.

T F Any laboratory may submit analysis results.
(73)

9. Rate your current level of knowledge about MSIS:

(74) None
(75) A little
(76) Some
(77) Quite a bit
(78) A great deal

GLOSSARY

Terms are included in this glossary only if their meanings differ from those found in a standard English language dictionary.

Analysis:

The separation of any abstract entity or material into its constituant elements, such as chemical-intentionally produced decomposition or separation of materials into their ingredients to find their kind or quality.

Analysis Method:

The method or technique utilized to obtain analysis results.

Analytical Techniques:

The methods used to determine the components of a substance, especially raw water.

Batch Processing:

A procedure in which a number of transactions, for example on keypunched cards, are accumulated before being processed together.

Check Sampling:

The act of acquiring additional quantities of water for analysis over and above the regular samples due to the suspicion of violating maximum contaminant levels.

Code:

A system used for brevity of communication in which arbitrarily chosen words, letters, or symbols are assigned definite meanings.

Computer:

A machine which accepts input data, processes it, and gives output data.

Computer Program:

A sequence of computer-readable instructions used in conjunction with appropriate data to perform specified logical tasks.

Correction:

Additions, subtractions, or changes to a computer file.

Course:

All content taught in one individual MSIS training program volume. A course is subdivided into units.

Data:

Raw facts or statistics which alone have little or no meaning, but as a group allow some meaningful relationships to be drawn.

Data Element:

An identifiable item of information within a record. See the Data Element Dictionary for all data elements used in MSIS.

Data Processing:

The act of manipulating information to obtain a desired result, especially with the use of a computer.

Economical:

Of or pertaining to the financial reasons for granting variances and exemptions.

Enforcement:

The act of creating and maintaining compliance using coercive methods.

Enforcement Action:

An act intended to generate compliance.

Exemption:

Authorized waiver of an MCL requirement due to compelling factors, such as need for a PWS to design and build effective treatment facilities.

Field:

See data element.

File:

A collection of records systematically arranged to facilitate quick reference; may be stored on magnetic tape or magnetic disc.

Goal:

A general achievement toward which effort is directed.

Gross Alpha:

A group of substances which emit Alpha particle radiation.

Gross Beta:

A group of substances which emit Beta particle radiation.

Hardware:

The physical equipment in a data processing system (contrasted with software).

Information:

Data that has been processed to obtain specific results which increase knowledge of the recipient and is used as the basis for decision making.

Inorganic:

Of or pertaining to substances that are not hydrocarbons or their derivatives.

Input:

Information which is specially prepared for acceptance by computer programs. Usually written down on special forms, then put into machine-readable form by, for example, keypunching.

Integrity:

Presumed reliability of data.

Internal:

Data processing occurring within the computer automatically according to instructions from computer programs.

Inventory:

A detailed, descriptive list, for example, of Public Water Systems.

Magnetic Disc:

A device which stores data on the magnetizable surfaces of one or more rotating discs, which look like a stack of phonograph records.

Magnetic tape:

A device which stores data on the magnetizable surface of a long strip of tape (the tape is typically 1 inch wide and 2400 feet long).

Maintain:

Actions taken to ensure up-to-date computer files.

Management Information System:

An organized method of maintaining facts pertinent to the governing of the operations of an organization.

Model State Information System:

(MSIS) a batch computer system designed to (1) maintain records on public water systems and the quality of the water they supply, and (2) prepare reports.

Monitor:

The acts of (1) a PWS observing and checking water quality or (2) a State observing and checking PWSs.

National Inventory File:

A computerized list of many public water systems in the United States; previously used to monitor water quality.

Objective:

A specific achievement that efforts are intended to attain.

Online Processing:

A procedure for inputting data computer whenever needed for immediate data processing, often by typewriter terminal.

Operator:

One who runs a public water system.

Organic:

Of or pertaining to substances that are hydrocarbons or their derivatives.

Output:

Any information passed from the computer.

Primacy:

Primary enforcement responsibility for carrying out the Safe Drinking Water Act of 1974.

Public Water System (PWS):

A set of components for the provision of piped water to persons for human consumption, if such facility has at least fifteen service connections or regularly serves at least twenty-five individuals 60 or more days per year.

Purge:

To remove from a computer those items no longer desired.

Raw Water:

Water at the source before any treatment.

Record:

A logical group of data elements.

Regulations:

Rules created by EPA within the guidelines established by the SDWA and having the same authority.

Report:

Information formatted by the computer in either human-readable form (such as a printed report) or machine-readable form (such as a magnetic tape).

Sample:

A portion of the whole to represent the whole, especially water.

Sanitary Survey:

An on-site review of the water source, facilities, equipment, operation, and maintenance of a public water system for the purpose of evaluating the adequacy of such source for producing and distributing safe drinking water.

Selection Process:

The method used by MSIS for selecting information from a computer file for use in a report. Many different criteria can be used in the selection of the data.

Software:

The computer programs required for the computer to work.

Subsystem:

A subset of the MSIS computer system. There are nine MSIS subsystems.

System:

A method or methods of accomplishing a function or functions, especially with a computer.

Table:

A computer file of brief information usually set up in logical relationships to permit quick access, often on magnetic disc.

Turnaround Document:

A form containing computer-printed information which needs additional information written on it; called "turnaround" since it is both an output and an input.

Unit:

A subset of teaching material within a course.

Variance:

Authorized deviation from an applicable national drinking water regulation because characteristics of the raw water source cannot be corrected by available means.

List of Abbreviations

Abbreviation	Meaning
BIP	Background Informational Package
CVT	Code Value Table
DET	Data Element Table
DVF	Deviations File
EAF	Enforcement Actions File
EMT	Error Message Table
ENAC	Enforcement Actions Subsystem
EPA	Environmental Protection Agency
FEDR	Federal Reporting Subsystem
LBT	Laboratory Table
MCL	Maximum Contaminant Level
MSIS	Model State Information System; also MSIS Standard Processing Subsystem
NIF	National Inventory File
NIPDWR	National Interim Primary Drinking Water Regulations
OMF	Operator and Mailing File
OPER	Operator and Mailing Subsystem
OWS	Office of Water Supply
PSF	Periodic Sample and Analysis File
PWF	Public Water System File
PWS	Public Water System
PWSI	Public Water System Inventory Subsystem
PWT	Public Water System Table
REGS	Regulations Subsystem

RGF	Regulations File
SAF	Sample and Analysis File
SDWA	Safe Drinking Water Act
SHF	MSIS Standard History File
SRVY	Sanitary Survey Subsystem
VAEX	Variances and Exemptions Subsystem
VEF	Variances and Exemptions File
VIF	Violations File
WAQC	Water Quality Compliance Subsystem

EXTRACTS FROM MSIS DOCUMENTS

II. System Overview

A. Introduction

The Model State Information System (MSIS) is a computer based information system designed to be used by the individual states and regional offices to meet the requirements of the "National Interim Primary Drinking Water Regulations" (December, 1974). These regulations were formulated by the U.S. Environmental Protection Agency under the authority of the Safe Drinking Water Act of 1974.

Using as a basis the Program Evaluation Requirements, Concepts and Plans for EPA Safe Drinking Water Program (Office of Water Supply, EPA, October 1975), American Management Systems, Inc. (AMS), performed a feasibility study and general systems design of the Model State Information System (June 15, 1976). Detail systems design, programming, testing, and documentation was carried out by SouthWestern Ohio Regional Computer Center (SWORCC).

MSIS is made up of five required subsystems and four optional subsystems. The five required subsystems are:

Public Water System Inventory Subsystem (PWSI)
Regulations Subsystem (REGS)
Water Quality Compliance Subsystem (WAQC)
Federal Reporting Subsystem (FEDR)
Standard Processing Subsystem (MSIS)

The four optional subsystems are:

Variances and Exemptions Subsystem (VAEX)
Enforcement Actions Subsystem (ENAC)
Sanitary Survey Subsystem (SRVY)
Operator and Mailing Subsystem (OPER)

B. General System Approach

The Model State Information System (MSIS) is designed to be standard enough that the individual states can use it on their various computer systems. At the same time, MSIS is flexible enough that the states may select segments of the system that fit their needs and may even easily modify the system to add to its functions.

Modularity of MSIS allows for flexibility. In order to give the States and regions the capability to fulfill their basic responsibilities to OWS, a minimum of five subsystems are required to do MSIS processing. They are the Public Water System Inventory Subsystem, the Water Quality Compliance Subsystem, the Regulations Subsystem, the Federal Reporting Subsystem, and the Standard Processing Subsystem. Four additional subsystems may be added, each at the discretion of the State or Region: the Variances and Exemptions Subsystem, the Sanitary Survey Subsystem, the Enforcement Actions Subsystem, and the Operator and Mailing Subsystem. In this way, the state may selectively add to or replace functions they currently have.

Within the subsystems, there is a built-in flexibility allowing the states to mold the system to better meet their individual needs. As an example, the Regulations Subsystem allows the states to input state regulations in addition to the required federal regulation. Flexibility is also given in report generation by allowing the state to select what information is to be contained on fixed format reports and in what order the report is produced. It must be emphasized, however, that any major changes may also require programming changes.

To contribute to the uniformity of MSIS, the following functions were standardized:

- File Maintenance
- Error Processing
- History Processing
- Report Generation
- Data Editing

1. File Maintenance

Adds:

The initial creation of a record on an MSIS file is accomplished with an ADD trasaction (code 00) which must contain all information necessary for processing by MSIS before it can be accepted.

Updates:

Existing data is modified by Update transactions. New data is edited and applied to the files field by field. An erroneous transaction field will not cause the entire transaction to be rejected. Instead, valid fields will be updated and only erroneous fields will need to be corrected and reentered. Since most update transactions refer to several data elements, the following approach is used:

a. If a data element field is blank, the data element on the file is not modified.

b. If the data element field contains a "$" in the leftmost position, the data element is reinitialized (existing data is replaced with blanks or zeros).

c. If transaction code "99" is used, the entire record is flagged as deleted. The only exception is in the Water Quality Compliance Subsystem, program WAQC010, where the delete transaction code is "01".

d. All other values can be used to replace the current value of the data element in the file provided that the new data is valid. Refer to the Data Element Dictionary (DED) to find the edit criteria for data elements.

2. Error Processing

Prior to actual processing, however, errors in processing options records must be handled in the individual programs. Errors created during actual processing of create and update modules in MSIS are handled by Standard Error Processing, a part of the Standard Processing Subsystem (MSIS). These errors created while updating or maintaining files, create the Standard Error File (SEF).

The SEF is processed by Standard Error Processing program (MSIS010) using the Error Message Table (EMT), to interpret the errors, and creating the Data Entry Error Report (Exhibit MSIS.313).

The Optional Error File (OEF) is an optional file which may be produced during Standard Error Processing so that the errors can be corrected by some text editing facility.

3. History Processing

In order to maintain an audit trail of the more important files of MSIS, two history processes are used. The Standard History Processing programs (MSIS.020,040,050), a part of the Standard Processing Subsystem, are used to record and make use of a history of all changes made to the Violations File (VIF), the Variances and Exemptions File (VEF), the Enforcement Actions File (EAF), and the Operator and Mailing File (OMF). These history records are maintained on the Standard History File (SHF).

The Public History File (PHF) is used to maintain a similar audit trail for the more complicated Public Water File (PWF) within the Public Water System Inventory Subsystem, (PWSI.070, 080, 090).

4. Report Generation

To permit the user to select and order records from files according to very flexible criteria, standard selection and sort methods are used throughout MSIS. Standard selection and sort processing options formats are used in all MSIS programs.

The selection process allows a maximum of thirty-five (35) data elements to be used as keys to determine if the data record qualifies to be selected. The user, therefore, can have an ample range for selecting records to be reported.

Additionally, the user has the option to have the records sorted in a meaningful sequence for the generation of a report. The user must keep in mind the length of the data elements to be used for sorting. A maximum of thirty (30) characters, accumulating all the lengths of the data elements, is allowed with no one length being greater than fifteen (15). Any data element with a length greater than fifteen will only use the first fifteen characters of the data element for sorting.

5. Data Editing

Some edit criteria is contained in the Code Value Table (CVT). The CVT contains acceptable data values in separate files for the eight subsystems of MSIS and one file of common data element values shared by two or more subsystems. (These common data elements are listed in Appendix A of the Data Element Dictionary). The CVT is used whenever possible to determine acceptable values.

C. Naming Conventions

1. File Name Abbreviations

Each file and table has associated with it a three letter abbreviation used in the full, programming name as an abbreviation for the file and a two letter mnemonic prefix used in the files' data element mnemonic names.

File Name	File ID	Mnemonic Prefix	Subsystem
Code Value Table	CVT	CV	MSIS
Compliance Status File	CSF	(none)	WAQC
Data Element Table	DET	DE	MSIS
Deviations File	DVF	(none)	FEDR
Enforcement Actions File	EAF	EA	ENAC
Error Message Table	EMT	EM	MSIS
Laboratory Table	LBT	LB	WAQC
Optional Error File	OEF	OE	MSIS
Operator and Mailing File	OMF	OM	OPER
Public History File	PHF	PH	PWSI
Periodic Sample File	PSF	PS	WAQC
Public Water File	PWF	PW	PWSI
Public Water Table	PWT	PT	PWSI
Regulations File	RGF	RG	REGS
Sample Analysis File	SAF	SA	WAQC
Standard Error File	SEF	SE	MSIS
Standard History File	SHF	SH	MSIS
Variances and Exemptions File	VEF	VE	VAEX
Violations File	VIF	VI	WAQC

2. COBOL Programming Names

The file and table data element names used in programming are assigned using the three letter file ID followed by a dash and a one (1) to twenty-six (26) character descriptive name. Example: PWF-PLANT-POPULATION-SERVED. (ANSI COBOL allows a maximum of thirty characters for a data name.)

3. Mnemonic Names

The Data Elements of some of the permanent files and tables have mnemonic names in addition to the COBOL programming names. The mnemonic name is formed using the two letter mnemonic prefix followed by a dash and a one (1) to seven (7) character abbreviation of the descriptive portion of the corresponding programming name. Example: PW-PL-POPL for PWF-PLANT-POPULATION-SERVED. The mnemonic names are used when filling in the SORT and SELECTION processing option forms, and also appear on the Standard Error Report.

4. Exhibits

Exhibit numbers are prefixed by the four letter subsystem prefix followed by:

A. 100-199 for input forms

B. 200-299 for record definitions

C. 300-399 for report layouts

D. 400-499 for turnaround documents

D. Files and Tables

The following are the permanent files and tables of MSIS. They are listed by the subsystem responsible for the files' creation.

1. Public Water System Inventory Subsystem (PWSI)

a. Public Water File (PWF), Exhibit PWSI.200, Data Element Catalogue Numbers 145 through 264, 701 and 702: The PWF is a variable length, sequential access file of detailed information about all Public Water Systems in the state.

b. Public Water Table (PWT), Exhibit PWSI.201, Data Element Catalogue Numbers 265 through 278, and 703: The PWT is a fixed length, direct access file of selected information from the PWF used primarily for supplying information on reports throughout MSIS.

c. Public History File (PHF), Exhibit PWSI.202, Data Element Catalogue Numbers 310 through 318: The PHF is a fixed length, sequential access history file of all modifications to the PWF used as an audit trail of the file.

2. Regulations Subsystem (REGS)

a. Regulations File (RGF), Exhibit 250 through 257, Data Element Catalogue Numbers 1 through 144: The RGF is a fixed length, sequential access file of all state and federal drinking water quality regulations.

3. Water Quality Compliance Subsystem (WAQC)

a. Periodic Sample File (PSF), Exhibit WAQC.252, Data Element Catalogue Numbers 399 through 429, 817 and 818, and 900 through 902: The PSF is fixed length, sequential access file of all water quality sample transactions.

b. Sample Analysis File (SAF), Exhibit WAQC.254, Data Element Catalogue Numbers 356 through 392, 807 through 816. The SAF is a fixed length, sequential access file containing a record for each chemical or radiological sample and a summary record of bacteriological and turbidity samples. The SAF is a summary of the PSF used to reduce the great numbers of sample records kept.

c. Violations File (VIF), Exhibit WAQC.255, Data Element Catalogue Numbers 326 through 355 and 800 through 806, and 819. The VIF is a fixed length, sequential access file of the violations to the drinking water regulations.

d. Laboratory Table (LBT), Exhibit WAQC.250, Data Element Catalogue Numbers 319 through 325 and 820: The LBT is a fixed length, direct access file of laboratories authorized to analyze water samples.

e. Compliance Status File (CSF), Exhibit WAQC.257, Data Element Catalogue Numbers 516 through 533. The CSF is a fixed length, sequential access file of information which deals with compliance determination.

4. Federal Reporting Subsystem (FEDR)

a. Deviations File (DVF), Exhibit FEDR.202, Data Element Catologue Numbers 492 through 511: The DVF is a fixed length, sequential access file of violations, variances, and exemptions. The DVF is created in FEDR for submission to EPA.

5. Standard Processing Subsystem (MSIS)

a. Code Value Table (CVT), Exhibit MSIS.206, Data Element Catalogue Numbers 279 through 284: The CVT is a fixed length, sequential access file of data element values used in editing in MSIS.

b. Data Element Table (DET), Exhibit MSIS.201, Data Element Catalogue Numbers 285 through 293: The DET is a fixed length, sequential access file of data element information used in MSIS.

c. Error Message Table (EMT), Exhibit MSIS.205, Data Element Catalogue Numbers 294 through 297: The EMT is a fixed length, sequential access file of errror codes and associated messages used in standard error processing.

d. Optional Error File (OEF), Exhibit MSIS.215, Data Element Catalogue Numbers 308 and 309: The OEF is a fixed length, sequential access file of errors created during MSIS processing used for correcting the errors using text editing facilities.

e. Standard Error File (SEF), Exhibit MSIS.207, Data Element Catalogue Numbers 298 through 300: The SEF is a fixed length, sequential access file of errors created during processing in MSIS.

f. Standard History File (SHF), Exhibit MSIS.202 Data Element Catalogue Numbers 301 through 307:

The SHF is a fixed length, sequential access file of changes made to the Violations File (VIF), the Enforcement Actions File (EAF), the Variances and Exemptions File (VEF) and the Operator and Mailing File (OMF).

6. Variances and Exemptions Subsystem (VAEX)

   a. Variances and Exemptions File (VEF), Exhibit VAEX.212, Data Element Catalogue Numbers 455 through 477: The VEF is a variable length, sequential access file of the variances and exemptions granted by the state to public water systems.

7. Enforcement Actions Subsystem (ENAC)

   a. Enforcement Actions File (EAF), Exhibit ENAC.202, Data Element Catalogue Numbers 430 through 454: The EAF is a variable length, sequential access file of enforcement actions being monitored by the state.

8. Operator and Mailing Subsystem (OPER)

   a. Operator and Mailing File (OMF), Exhibit OPER.200, Data Element Catalogue Numbers 478 through 491: The OMF is a variable length, sequential access file of mailing information and records of certified operators.

(Sanitary Survey Subsystem (SRVY) does not create any permanent files.)

III. Subsystem Descriptions

A. Public Water System Inventory Subsystem (PWSI)

1. General Description

The Public Water System Inventory Subsystem (PWSI) is central to and a mandatory subsystem of the Model State Information System (MSIS). This subsystem maintains descriptive data about Public Water Systems (PWS's) on a Public Water File (PWF). This file is also used by other subsystems. The principal function of the PWSI Subsystem is to create and maintain this file and to display its contents upon request.

The PWF is used in the following subsystems:

- Water Quality Compliance Subsystem (WAQC) uses the PWF to identify state defined regulation criteria for each specific PWS.
- Federal Reporting Subsystem (FEDR) uses the PWF to report on the individual PWS's which were modified in a specific reporting period.
- Sanitary Survey Subsystem (SRVY) uses the PWF to selectively weigh and list PWS's for survey purposes according to specific criteria.

In addition, some basic descriptive data is maintained in a direct access file, the Public Water Table (PWT), that is used as a verification aid and as a source of Public Water File data by the following subsystems: Enforcement Actions Subsystem, Variances and Exemptions Subsystem, and Operator and Mailing Subsystem. This table is built from the PWF.

3. PWSI Subsystem Overview

The overall design of the PWSI includes the following functions:

- conversion of the PWF from the National Inventory File
- data entry and updating
- selection of data for reporting from the Public Water File and Public History File
- condensed reporting
- state discretionary data reporting
- Public Water System production data reporting
- comprehensive reporting
- history file maintenance, purge and reporting
- initial creation of the PWF from the national PWS Inventory File
- creation of the PWT

The main features of the PWSI Subsystem are

- Inputs do not depend on automation of other optional subsystems
- A sequential file and a direct-access table
- Variable length record for each PWS dependant on the number of water sources
- Flexible reporting modules that allow the user to specify selection criteria and sort sequence, but within predetermined print formats
- Suitable for annual reporting to EPA

Inputs to the subsystem consist of source documents that are transcribed on special input forms and then keypunched. The regular process is to read the input transactions and edit and verify all verifiable data. Transactions without errors are used to update the PWF, and those in error appear on an error list produced to facilitate correction of errors. Periodically and upon request, the PWF can be used to list an inventory of Public Water Systems and other information for use by state officials.

The inputs to PWSI Subsystem emanate from such sources as:

- EPA National PWS Inventory File (an inital conversion process)
- Sanitary surveys scheduled or performed
- Permits for new PWS's
- Updates received from PWS operators
- Updates received from VAEX, if subsystem is used
- Updates received from WAQC

Except for data from the EPA National PWS Inventory File, all inputs must be transcribed on a single input form that may be used for all these transactions (See Exhibit PWSI.400-401).

Exhibit PWSI.400-401 contains the format for PWS status and entry. This form serves two purposes:

- As an input form for the creation of a new PWS record
- As a turnaround document on which a PWS status is printed and which can be used to make changes and corrections to the record.

B. Regulations Subsystem (REGS)

1. General Description

The Regulations Subsystem (REGS) is a mandatory subsystem whose purpose is to create the Regulations File (RGF). The RGF is a file of records containing the Federal and/or state regulations for contaminants monitored in drinking water. The RGF serves as a basis for determining whether water samples taken from a PWS distribution system are in compliance with chemical, radiological, bacteriological or turbidity State or Federal Regulations. Each record on the RGF pertains specifically to information necessary to define a State or Federal Regulation for one contaminant. In addition, Federal and State Regulation tables such as the fluoride temperature dependent maximum contaminant levels are included in the RGF.

Drinking water quality is determined by comparing the results of laboratory analysis with the requirements of the National Interim Primary Drinking Water Regulations as contained on the RGF. These regulations specify the number of samples required, analysis methods allowed, and contaminant levels permitted. In some instances Federal standards are modifiable by the States (for example, as in 141.27, using alternative analytical techniques). A State may also choose to enforce its own, more stringent standards, in which case, a Public Water System (PWS) may be in violation of the state's standards, but not of the federal standards.

The RGF is used by the Water Quality Compliance Subsystem (WAQC) for determining Maximum Contaminant Level (MCL) and Sampling Violations and for scheduling samples and subsequent analysis for a given PWS.

3. REGS Subsystem Overview

The Regulations Subsystem consists of only two modules (REGS010 and REGS020) whose functions are to accept input transactions to create the Regulations File (RGF) and list its contents.

The fundamental structure of the RGF follows the National Interim Primary Drinking Water Regulations. If a State defines its regulations differently, the file formats may not fit the structure of the State regulation and a special interface must be developed for that State. States may, however, add contaminants to the file so long as the basic structure of the record is not violated.

The input consists of cards keypunched from the Regulations Subsystem input forms (Exhibits REGS.101 to 108). The output comprises the Regulations Tables and Reports (Exhibit REGS.301 - 308). The process consists of reading and editing all input transactions, creating a new RGF and listing its contents.

Since the regulations are expected to be fairly static once established, the system does not provide individual record update capability. Each time a regulation is changed, data from the new set of keypunched cards entirely rebuilds the RGF. However, states that have access to sophisticated computerized text editors may wish to maintain the RGF through such existing procedures.

C. Water Quality Compliance Subsystem (WAQC)

1. General Description

The Water Quality Compliance Subsystem (WAQC) is a mandatory subsystem which is designed to monitor the quality of the drinking water supplied to the public. Two levels of PWS compliance with the Safe Drinking Water Act may be defined. The first, or primary level of compliance is achieved by using those treatment, storage, and distribution methods needed to supply safe drinking water. A secondary compliance level is achieved by monitoring the quality of the drinking water being supplied to the public. This is a more indirect level and, therefore, less desirable method of detecting problems. Primary compliance actions are designed to prevent problems before they arise; secondary compliance activities are designed to identify problems and correct them after they have arisen.

Primary compliance can be controlled by a state in two ways; by a permit program for new PWS or by periodic sanitary surveys. A permit program is essentially a sanitary engineering task. The PWSI Subsystem will be used to maintain most data elements related to facilities. The Sanitary Survey Subsystem is used to schedule inspections of PWS facilities and thus provides a second way of controlling basic compliance.

Secondary compliance is accomplished by monitoring the sampling and analysis of finished water. The WAQC is designed to provide the means for this monitoring process.

There are eight requirements in the National Interim Primary Drinking Water Regulations that a PWS could violate:

(1) Maximum Contaminant Level (MCL).

(2) Sampling requirements: number, frequency, and methodology;

(3) Check sampling;

(4) State notification;

(5) Public notification;

(6) Treatment techniques;

(7) Violation of compliance schedule under a variance or exemption;

(8) Record Keeping.

The main purpose of the WAQC is to identify violations of the first three of these regulatory requirements. In this way, the Water Quality Compliance Subsystem compliments the PWSI Subsystem and the Sanitary Survey (SRVY) Subsystem by providing data management for tracing non-compliance with the Safe Drinking Water Act.

Secondary compliance can be further classified as compliance with the National Interim Primary Drinking Water Regulations or compliance with the state's own standards. There is a need to identify both, and also to indicate if non-compliance is temporarily overruled by variances or exemptions. The WAQC Subsystem responds to this need by using the Regulations File (RGF) and the Public Water File (PWF).

3. WAQC Subsystem Overview

The WAQC contains programs to carry out the following functions:

- Data Entry and Updating
- Selection and Sorting
- Reporting
- Purging
- Summarizing
- Violation Identification
- Sample Scheduling

The main features of the Water Quality Compliance Subsystem are:

- Batch, sequential processing;
- Interaction with the other MSIS Subsystem;
- Flexible selection and reporting modules that allow the user to specify record selection and sort sequence, but within predetermined print formats;
- Identification of violations of sampling requirements and contaminanct levels.

Analysis result input transactions are entered via sample data input forms for bacteriological, turbidity, chemical, and radiological samples. Input transactions may also be used for creating, deleting, or updating files (Periodic Sample File, Sample Analysis File, Violations File, Laboratory Table)

The three basic transactions in the sample data, file updates, and file deletions -- are discussed below:

a. Sample_Data

The system is designed to accept three types of samples described below -- bacteriological, turbidity, and chemical and radiological samples.

1. Bacteriological_Samples

Bacteriological samples may be reported by each PWS on a monthly summary form (Exhibit WAQC.108 and 402) or as a list of samples (Exhibit WAQC.107 and 401). The state may use the Bacteriological Reporting Requirements Flag on the inventory record to indicate the reporting mode for each PWS. If the flag is not set, it is assumed that the PWS is reporting on a list.

2. Turbidity_Samples

A PWS may report turbidity samples on a summary form (Exhibit WAQC.108 and 407) or a list of individual samples (Exhibit WAQC.107 and 405). The state may use the Turbidity Reporting Requirements Flag on the inventory record to indicate the reporting mode for each PWS. If the flag is not set, it is assumed that the PWS is reporting on a list.

3. Chemical_and_Radiological_Samples

Results of samples for chemical and radiological analysis must be reported individually (Exhibits (WAQC.106, 400). This form contains only the contaminants included in the National Interim Primary Drinking Water Regulations; states may add more contaminants to its individual forms if desired.

b. File_Updates

Violations which are not automatically identified by the Water Quality Compliance Subsystem must be reported using the Violation Reporting Form for additions or updates to the Violations file.

c. Deletion

The Sample Analysis File (SAF) and Violations File (VIF) use code 99 for deletions. The Periodic Sample File (PSF) is an exception; it uses code 01 for deletion. This exception was permitted because the PSF does not allow updating. The only way an update can be accomplished is to first delete (code 01) and, second, add a corrected version.

All analysis result input transactions are edited and posted to the Periodic Sample File (PSF) which is used to collect and store data during the compliance cycle. Every reporting period, some of the data from the PSF will be summarized and posted to the Sample Analysis File (SAF).

The PWF, VEF and the Violations File (VIF) are matched to create a Deviations File and modified Public Water File (PWF). These two files constitute most of the annual reporting requirements.

D. Federal Reporting Subsystem (FEDR)

1. General Description

The Federal Reporting Subsystem (FEDR) is a mandatory subsystem which produces two of the four files needed to meet requirements as specified in Section 142.15 of the Interim Primary Drinking Water Regulations that must be sent to EPA by states who assume primary enforcement responsibility. These include:

- Additions to the National Public Water System Inventory or any Public Water File record which was modified in the past year.
- All Federal violations of the primary drinking water regulations;
- All variances or exemptions being considered or granted by the state and the status of each of the variances and exemptions.

The purpose of the FEDR Subsystem is to retrieve data elements from the state's files, and if necessary, reformat them, and create two files for reporting to EPA. There are two modules FEDR010 and 020.

3. FEDR Subsystem Overview

The features of the subsystem are:

- Batch processing of the Public Water File, Variance and Exemption File, and the Violations File which are necessary for periodic reporting to EPA.
- Output is in the format required by EPA for reporting

One of the potential benefits from implementing the subsystem is that states need not perform any special action for the annual report to EPA. Execution of the Federal Reporting Subsystem will automatically produce a Public Water File of all new or modified Public Water Systems and a file of all Federal Violations and Variance and Exemptions, unless the Variances and Exemptions Subsystem is not implemented, in which case their reporting must be done manually. This will save states using the Model State Information System the expense of preparing special summaries or input forms for EPA. And EPA will enjoy the benefit of standard formatted input files and more timely, accurate, and formatted input to its own data management system.

The process in preparing files and reports to submit to EPA is composed of the following steps:

a. Update the Violations File (VIF) with all current Violations data (module WAQC120) and produce the Compliance Summary Report (module WAQC125), selecting only those records which violate the Federal Interim Primary Drinking Water Regulations.

b* Update the Variances and Exemptions File (VEF) with all current Variances and Exemptions data (module VAEX010) and produce the Variances and Exemptions Condensed Report (modules VAEX040, VAEX041).

c. Run the Federal Reporting jobstream which will:

   1. Build the modified Public Water File (PWF) (module FEDR010).

   2. Build the Deviations File (DVF) (module FEDR020).

d. Run the following jobs which will complete the Federal Reporting Process:

   1. Produce the Public Water System Condensed Report from the modified PWF (modules PWSI020,PWSI030).

   2* Copy the Enforcement Actions File (EAF).

   3* Produce the Enforcement Actions Case History Report (modules ENAC020, ENAC030).

The files that are required for reporting are then ready, together with reports of their contents. Copies of the reports which were produced in the above steps should be made available for public inspection as required by 142,15(d) of the regulations.

*Note: These steps are bypassed if the subsystem referred to is not installed.

E. Standard Processing Subsystem (MSIS)

1. General Description

The Standard Processing Subsystem (MSIS) is a mandatory utility subsystem. It provides all of the other subsystems except Federal Reporting (FEDR) and Sanitary Survey (SRYV) Subsystems, with edit criteria and error processing. It provides a history file for Enforcement Actions (ENAC), Operator and Mailing (OPER), Variances and Exemptions (VAEX), and Violations File (VIF) from Water Quality Compliance (WAQC).

3. MSIS Subsystem Overview

The major functions of the MSIS subsystem are:

- Code Value Table (CVT), Data Element Table (DET), and Error Message Table (EMT) Creation
- Error handling
- History maintenance, purge, and reporting
- History record selection and reporting

The main features of the subsystem are:

- Sequential files and tables
- Batch processing
- Flexible record selection and reporting modules

The Code Value Table (CVT), Data Element Table (DET), and Error Message Table (EMT) are created in module MSIS030 from input forms Exhibits MSIS.102, 103, 104.

The Standard Error File (SEF) is created by all subsystems except the Sanitary Survey Subsystem (SRVY) and Federal Reporting Subsystem (FEDR) and processed by the MSIS Subsystem.

The Standard History File (SHF) is created by the Water Quality Compliance Subsystem (WAQC), and the Variances and Exemptions Subsystem (VAEX), Enforcement Actions Subsystem (ENAC), and Operator and Mailing Subsystem (OPER) if used by the state or region, and is then processed by the MSIS Subsystem.

F. Variances and Exemptions Subsystem (VAEX)

1. General Description

The purpose of this optional subsystem is to provide the state or region with a method for collection, maintenance and processing of data related to the process of granting variances or exemptions from State or Federal Regulations. The variances and exemptions are granted by states who have primary enforcement responsibility. For States that have not qualified for primary enforcement responsibility, the EPA region is authorized to grant variances and exemptions.

Variances and exemptions may not be granted if to do so would result in an "unreasonable risk to health". EPA has indicated that this is to be interpreted to mean that no variances or exemptions from bacteriological Maximum Contaminant Levels (MCL's) should be permitted. Variances and exemptions, therefore, will probably be permitted only from the chemical contaminant levels.

Variances and exemptions both have essentially the same result. Both effectively exempt a Public Water System from one or more requirements of the regulations. The difference lies in the circumstances under which they may be granted and the length of time allowed for compliance.

a. Variances

1. A variance from a maximum contaminant limit may be granted if a PWS is unable to comply because it is unable to make its raw water source safe for technological reasons. For example, many water systems in the southern part of Virginia draw their water from sources containing a naturally high concentration of fluoride. These systems will probably have to find an alternative source of water either by building a new treatment plant at another location or purchasing their water from a safe supplier. Until they are able to locate an alternative source and build the necessary treatment facilities or locate a safe supplier, they will need a variance from the fluoride contaminant limit.

2. A variance from the required treatment technique may be granted if a PWS can demonstrate that the treatment is not required because of the high quality of its raw water. In this case, the raw water is naturally free from a particular type of contaminant or contains low enough levels that it is unnecessary to treat it for that particular type of contaminant.

The first type of variance will be terminated when the system comes into compliance with the standard. The second type may be terminated at any time upon a finding that the nature of the raw water sources has changed to the extent that treatment is required. In effect, both types of variances will be granted for indefinite time periods with no legislated termination date.

b. Exemptions

Exemptions may be granted to PWS's that are unable to comply for compelling reasons, mainly economic ones. In other words, an exemption is designed to solve the problem of systems that cannot afford to apply available treatment technology rather than the problem of systems that cannot make their water safe with even the best available treatment technology. Exemptions address an economic problem, variances, a technical problem. Unlike variances, moreover, exemptions cannot be granted for indefinite time periods. The act itself states that compliance must occur by certain dates.

Exemptions are clearly aimed at the economic problems of smaller systems. The states or regions can use exemptions to give smaller systems additional time to comply with the regulations, but the Act contains specific cutoff dates by which these systems must be in compliance regardless of the cost.

If a variance or exemption is granted, the state or EPA region must prescribe a schedule for compliance and interim control measures within one year of the date it is granted. The state or region must monitor actual progress against this schedule in the same way that it has to monitor compliance with the main body of drinking water regulations.

3. VAEX Subsystem Overview

The VAEX subsystem must maintain variances and exemption information for three purposes. First, this type of information is required by the Federal Reporting Subsystem (FEDR) for reporting to EPA. Second, information is required for monitoring progress against compliance schedules specified in particular variances and exemptions for particular Public Water Systems. Last, any variance or exemption data needed for determining compliance will be generated by this subsystem and transmitted to the Public Water File.

The major functions of VAEX are:

- Data Entry and Updating
- Selection and Reporting
- Providing data to the Public Water System Inventory Subsystem.

The main features of the VAEX subsystem are:

- Sequential, variable length file;
- Batch processing;
- Flexibility in reporting with respect to selection, sorting, summarizing;
- Subsystem is optional and can be used if needed.

The source of transactions to create and maintain the Variances and Exemptions File (VEF) is the administrative unit responsible for the granting and monitoring of variances and exemptions.

All variances and exemptions on the VEF are identified by a sequential identification number. Accordingly, transactions refer to a VEF record by that number in positions 1 to 5 of the record. There are four types of transactions: addition of a new VEF record, milestone creations, changes to data elements in an existing record, and deletion of an existing record. All transactions are identified by a two-digit transaction code in positions 6 to 7 of the record. The transaction key, positions 1-7, is a combination of VAEX-ID and transaction code. Reference input forms layout in Exhibit VAEX.100, 101, 107.

G. Enforcement Actions Subsystem (ENAC)

1. General Description

The purpose of this optional subsystem is to provide the state or region with a method for collection, maintenance, and processing of data related to actions performed in connection with enforcing the state's own regulations (or the Federal Regulations) under the Safe Drinking Water Act. The data can then be used for evaluating the effectiveness of different types of enforcement actions. Reporting to EPA of enforcement actions, as required by section 142.15 of the regulations, can also be done automatically using the subsystem by submitting to EPA the reports of the entire Enforcement Actions File (EAF).

3. ENAC Subsystem Overview

The major functions of ENAC are:

- Data entry and updating
- Selection and reporting

The subsystem has the following features:

- Flexibility in preparing reports with respect to selection criteria and sorting;
- Subsystem is optional within MSIS;
- Batch processing using sequential files.

The source of transactions to create and maintain records in the Enforcement Actions File (EAF) is the administrative unit responsible for enforcing the drinking water regulations by formal actions.

A five-digit sequential number is used to identify an Enforcement Action record. This number in positions 1 to 5 of a transaction and transaction code in positions 6 and 7 constitute the transaction key.

H. Sanitary Survey Subsystem (SRVY)

1. General Description

The Sanitary Survey Subsystem (SRVY) is an optional subsystem designed to satisfy Section 142.10 (B)(2) of the Drinking Water Standards Implementation Regulations which requires states that assume enforcement responsibility to have "A systematic program for conducting sanitary survey compliance..."

A survey of 24 states shows that many states do not have enough manpower to survey as they would like. The addition of non-community Public Water Systems (PWS's) to those already under regulation, will increase the need for a systematic method of scheduling sanitary surveys. The Sanitary Survey Subsystem is designed to provide this systematic method.

The method is based on assigning different weight to five parameters: PWS type size of population served, the type of source water and Public Water System has, compliance history, and period elapsed since last survey. State officials can change the relative weights until a satisfactory formula is reached.

3. System Overview

The major functions of SRVY are:

- Scheduling
- Reporting

The features of the subsystem are:

- Simple, batch processing;
- Generation of Public Water File form designed as a turnaround document for computer input processing;
- Interaction with the PWSI Subsystem.

SRVY uses the Public Water File (PWF) and Violations File (VIF) to identify systems who are in violation and those who fit the prescribed conditions for selection.

I. Operator and Mailing Subsystem (OPER)

1. General Description

The Operator and Mailing Subsystem (OPER) is an optional subsystem designed for two purposes: first, to provide management with data concerning certified operators, and second, to provide the state with the capability to manage a mailing distribution list for mailing material to local governments, cities, consulting engineers, etc. Since the mailing list and operator data requirements are similar, these two functions are combined in a single subsystem.

3. OPER Subsystem Overview

The major functions of OPER are:

- Data Entry and Update
- Selection and Reporting
- Label Printing

The subsystem features:

- Off-line batch processing
- Sequential processing of a variable length
- Flexibility in reporting or printing labels with respect to selection and sorting.

Transactions to maintain the Operator and Mailing File (OMF) are of three types: add a new record, change data elements in an existing record, and deletion of a record. Records are identified by a five-digit sequential number and an addressee type code.

Addressee type '0' is reserved for operators. Other addressee types are left to be defined by each state according to its needs.

Because an operator record contains more information than other addressee type records, there are two different input forms for the two types (see Exhibits OPER.107 and 108). The difference between the two is that transaction '03' applies only to operator records.

Input Forms

Subsystem	Processing Options															
	PROC. Prog.	No.	SORT Prog.	No.	SEL1 Prog.	No.	SEL2 Prog.	No.	Table Creation Prog.	No.	Record Creation Prog.	No.	Water Quality Prog.	No.	Scheduling Prog.	No.
PSWI	010 020 - 050 060 070 080 090 120 - 130	111 113 110 106 101 103 101	030 - 080	100	020 & 080	107	020 & 080 RESTART 125	108			010	114				
WAQC	010 & 020 011 & 125 025 040 100 120 130 210 220	103 111 121 112 115 118 114 100 113	011 040 - 113	104 113	100 & 125	116	100 & 125	117	210	101 102	120	119 120 020	010	106 107 108 105 110	130	124
REGS	010 020	199 109							010	101 102 103 104 105 106 107 108						
VAEX	010	102	040	103	040	105	040	106			010	100 101 107				
SRVY	010	100	010	101												
ENAC	010 020	100 105	020	106	020	107	020	108			010	101 102 103 104				
OPER	010 020	101 102	020	103	020	104	020	105			010	100				
MSIS	030 & 040 050	101 100	040	108	040	106	040	107	030	102 103 104						
FEDR	010	100														
TOTALS	32	26	22	7	8	6	8	6	3	13	5	11	2	5	1	1

VARIES 1 of 1
10/28/76

This report is produced by any module that needs an Update Statistics Report.

SouthWestern Ohio Regional Computer Center

EXHIBIT MSIS.300

```
XXXXXXX ①                       MODEL STATE INFORMATION SYSTEM
                           X--------------------------------------X ②
DATE XX/XX/XX                   STANDARD UPDATE STATISTICS REPORT                      PAGE ZZZZ9

                                                                  % RELATIVE TO TE
                                                         TOTAL      ORIGINAL FILE

              1. NUMBER OF RECORDS ORIGINALLY ON THE FILE       ZZZ,ZZZ,ZZ9

              2. NUMBER OF ACCEPTABLE DATA ENTRY TRANSACTIONS   ZZZ,ZZZ,ZZ9

              3. NUMBER OF STANDARD ERROR RECORDS CREATED       ZZZ,ZZZ,ZZ9

              4. NUMBER OF RECORDS MODIFIED ON THE FILE         ZZZ,ZZZ,ZZ9       ZZZ9 %

              5. NUMBER OF NEW RECORDS ADDED TO THE FILE        ZZZ,ZZZ,ZZ9       ZZZ9 %

              6. NUMBER OF RECORDS DELETED FROM THE FILE        ZZZ,ZZZ,ZZ9       ZZZ9 %

              7.  NUMBER OF RECORDS NOW ON THE FILE             ZZZ,ZZZ,ZZ9       ZZZ9 %
```

① PROGRAM NAME

② SUBSYSTEM NAME

STATISTICAL REPORT

```
          REGS020                      1 of 1
                                       9/23/76
   RGF Report Module
            SouthWestern Ohio Regional Computer Center
 EXHIBIT REGS.302


                                         MODEL STATE INFORMATION SYSTEM
  REGS020                                     REGULATIONS SUBSYSTEM

  DATE XX/XX/XX                        REGULATIONS REPORT - TURBIDITY CONTAMINANT                      PAGE ZZZZ9

     CONTAMINANT ID                   REGULATION/LEVEL                        CONTAMINANT NAME

        0100                                XX                                  TURBIDITY

          MCL FOR                           MCL FOR                                  NUMBER OF
       MONTHLY AVERAGE                 CONSECUTIVE SAMPLES                      CONSECUTIVE SAMPLES

            Z9                                Z9                                        Z9

         EFFECTIVE                          APPLY TO                              INCLUDE REPEAT
           DATE                           ALL SOURCES                          SAMPLES IN AVERAGE

         XX/XX/XX                              X                                        X

      ____FREQUENCY  OF  MONITORING______________                              MINIMUM RESAMPLING PERIOD
                                                                                   IF MCL EXCEEDED
      COMMUNITY PWS:  ZZ9   NON-COMMUNITY PWS:  ZZ9
                                                                                        Z9
```

<u>INPUT REPORT</u>

```
         MSISOIO                        1 OF 1
                                        11/18/76
STANDARD ERROR PROCESSING MODULE
          SOUTHWESTERN OHIO REGIONAL COMPUTER CENTER
EXHIBIT MSIS.313


MSIS010                                      MODEL STATE INFORMATION SYSTEM
                                              STANDARD PROCESSING SUBSYSTEM
DATE XX/XX/XX
                                                DATA ENTRY ERROR REPORT
                                         FOR SUBSYSTEM:  XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  ①                         PAGE ZZZZ9


ERROR
NUMBER 2345678901234567890123456789012345678901234567890123456789012345678901234567890     DATA
                                                                                     ELEMENT COLUMNS        EXPLANATIONS
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXX XX-XX XXXXXXXXXXXXXXXXXXXXXXXXXXXX  ②
```

① X'S WILL BE REPLACED BY ONE OF THE FOLLOWING:

A. PUBLIC WATER SYSTEM INVENTORY
B. WATER QUALITY COMPLIANCE
C. REGULATIONS
D. VARIANCES AND EXEMPTIONS
E. ENFORCEMENT ACTIONS
F. OPERATOR AND MAILING
G. STANDARD PROCESSING

② SEE ATTACHED SHEETS FOR ERROR DESCRIPTIONS

ERROR REPORT

```
                  PWS1050                                   1 OF 1
                                                            11/18/76
  STATE DISCRETIONARY DATA REPORT MODULE
              SOUTHWESTERN OHIO REGIONAL COMPUTER CENTER
EXHIBIT PWS1.301


                                                     MODEL STATE INFORMATION SYSTEM
  PWS1050                                        PUBLIC WATER SYSTEM INVENTORY SUBSYSTEM

  DATE XX/XX/XX                              PUBLIC WATER SYSTEMS - STATE DISCRETIONARY DATA                             PAGE ZZZZ9

  REGN DIST    ID              NAME     ------------------------B A C T E R I O L O G I C A L------------------    ---TURBIDITY---
                                                                                    MIN NO  NCOM  MCL HALT   %
   XX   XX  XXXXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXX  BACTI MONTHLY  NO OF   SEASON    DAILY  SAMPLE  CHECK  CHLORINE        TURBIDITY
                                                     FLG  MONITOR SAMPLES START END CHECKS  FREQ   SAMPLE  SAMPLES       FLAG   UNITS

                                                      X      X      XXX   XX/XX XX/XX X     XXX      X       XX          X      X.X

  -----------------CHEMICALS----------------       ---------------------------------RADIOACTIVE------------------------------------------
       FOLLOW
   UP MONITOR                      INORGANIC
  CONTAMIN SAMPLE   ORGANIC      AIR  NITRATE      RADIOACTIVE  BETA FREQ  NUCLEAR   MONITOR      MONITOR     NUM SAMPLES  GROUND WATER
     ID     FREQ   BEGIN  END   TEMP   FREQ        FLG MONITOR   MONTHS     FAC    GROSS ALPHA  RADIUM MTHS    PER  YR       MONITOR

    XXXX     XXX   XX/XX XX/XX XX.X   XXXX          X     X        XX        X  X       XX           XX           X             X
    XXXX     XXX
    XXXX     XXX
    XXXX     XXX

  LAB DATA:         ID        CAPTIVE      TYPE
                                                                                    FACILITY         CONTAMINANT
                                                                                  CONTAMIN ID         FREQUENCY
                  XXXXX          X           X
                  XXXXX          X           X
                  XXXXX          X           X                                        XXXX               XX
                  XXXXX          X           X                                        XXXX               XX
                  XXXXX          X           X                                        XXXX               XX
                                                                                      XXXX               XX
   VARIANCE OR  CONTAMINANT  MODIFIED  ALT MONITOR                                    XXXX               XX
    EXEMPTION:      ID          MCL        FREQ                                       XXXX               XX
                     '                                                                XXXX               XX
                  XXXXX       XXXXXX       XXX                                        XXXX               XX
                  XXXXX       XXXXXX       XXX                                        XXXX               XX
                  XXXXX       XXXXXX       XXX                                        XXXX               XX
                  XXXXX       XXXXXX       XXX
```

INFORMATIONAL REPORT

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MSIS030                          MODEL STATE INFORMATION SYSTEM
                                 STANDARD PROCESSING SUBSYSTEM
DATE 05/11/77                         ERROR MESSAGE TABLE                                PAGE    1

              FILE ID            ERROR CODE                 ERROR MESSAGE

                MS                  001           REJECT-INVALID RECORD-ID
                MS                  002           REJECT-RECORD ALREADY EXISTS
                MS                  003           REJECT-NO MATCHING RECORD-ID
                MS                  004           REJECT-RECORD IS INCOMPLETE
                MS                  005           REJECT-CONTAM ID INVALID
                MS                  006           REJECT-STATE VALUE TOO LOW
                MS                  007           REJECT-STATE VALUE TOO HIGH
                MS                  008           REJECT-FED, RECORD MISSING
                MS                  009           REJECT-REC, HAS INVALID DATA
                MS                  010           REJECT-NOT NUMERIC
                MS                  011           REJECT-VALUE UNNACCEPTABLE
                MS                  012           REJECT-VALUE TOO HIGH
                MS                  013           REJECT-VALUE TOO LOW
                MS                  014           REJECT-NOT IN CODE TABLE
                MS                  015           REJECT-PWS ID INVALID
                MS                  016           REJECT-LAB NOT AUTHORIZED
                MS                  017           REJECT-INVALID TRANSACT CODE
                MS                  018           REJECT-REQUIRED DATA MISSING
                MS                  019           REJECT-NO MATCHING MILESTONE
                MS                  020           REJECT-INVALID DELETE CODE
                MS                  021           REJECT-INVALID CREATE CODE
                MS                  022           REJECT-TOO MANY VIOLATIONS
                MS                  023           REJECT-NO MATCHING VIOLATION
                MS                  024           REJECT-INVALID REQUEST CODE
                MS                  025           REJECT-TOO MANY MILESTONES
                MS                  026           REJECT-INVALID OCCURRENCE
                MS                  027           REJECT-METHOD NOT ON TABLE
                MS                  028           REJECT-DUPLICATE MILESTONE
                MS                  029           REJECT-ILLEGAL DELETION
                MS                  030           REJECT-ASSOC VALUE MISSING
                MS                  031           REJECT-TOO MANY CONTAMINANTS
                MS                  032           REJECT-NO MATCHING CONTAMNT
                MS                  033           REJECT-INVALID DATE
                MS                  034           REJECT-DUPLICATE LAB ID
                MS                  101           WARNING-CHECK ELEMENT VALUE
                MS                  102           WARNING-ELEMENT EXCEEDS MAX
                MS                  103           WARNING-ELEMENT BELOW MIN
                MS                  104           WARNING-NOT IN CODE TABLE
                MS                  105           WARNING-NOT IN DATA ELE TBL
                MS                  106           WARNING-DEFAULT VALUE USED
                MS                  107           WARNING-NOT NUMERIC
                MS                  108           WARNING-VALUE TOO LOW
                MS                  401           INVALID-NOT NUMERIC
                MS                  402           INVALID-NOT IN CODE TABLE
                MS                  403           INVALID-NOT A VALID DATE
                MS                  404           INVALID-ELEMENT EXCEEDS MAX
                MS                  405           INVALID-ELEMENT BELOW MIN
                MS                  406           INVALID-ELEMENT MISSING
                MS                  407           INVALID-VALUE UNNACCEPTABLE
                MS                  408           INVALID-NOT ALPHABETIC
```

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MSIB039                      MODEL STATE INFORMATION SYSTEM
                             STANDARD PROCESSING SUBSYSTEM
DATE 05/11/77                     ERROR MESSAGE TABLE                                PAGE    2

              FILE ID            ERROR CODE                ERROR MESSAGE

                MS                  409              INVALID=NOT ON PUB WATER TBL
                MS                  410              INVALID=ASSOC VALUE MISSING
                MS                  411              INVALID=CANNOT ACCESS LST
                MS
```

```
MSI8030                              MODEL STATE INFORMATION SYSTEM
                                     STANDARD PROCESSING SUBSYSTEM
DATE 05/11/77                               CODE VALUE TABLE                                      PAGE     1

                DATA ELEMENT
      FILE ID   CATALOGUE NO   DATA ELEMENT LENGTH   DATA ELEMENT VALUE        DATA ELEMENT DESCRIPTION

        EA          435                1                     A               MUNICIPAL AUTHORITY
        EA          435                1                     C               CONSERVATION ORGANIZATION
        EA          435                1                     F               FEDERAL GOVERNMENT
        EA          435                1                     G               GROUP ACTION
        EA          435                1                     I               INDUSTRIAL ORGANIZATION
        EA          435                1                     M               MUNICIPAL GOVERNMENT
        EA          435                1                     N               COUNTY GOVERNMENT
        EA          435                1                     O               OTHER ORGANIZATION
        EA          435                1                     P               PRIVATE CITIZEN
        EA          435                1                     S               STATE GOVERNMENT
        EA          435                1                     W               WATER SUPPLY OWNER
        EA          435                1                     0               OTHER ORGANIZATION
        EA          435                1                     1               INDUSTRIAL ORGANIZATION
        EA          437                1                     F               FEDERAL POLLUTION SOURCE
        EA          437                1                     I               INDUSTRIAL POLLUTION SOURCE
        EA          437                1                     M               MUNICIPAL POLLUTION SOURCE
        EA          437                1                     N               COUNTY POLLUTION SOURCE
        EA          437                1                     O               OTHER POLLUTION SOURCE
        EA          437                1                     P               PRIVATE CITIZEN
        EA          437                1                     S               STATE POLLUTION SOURCE
        EA          437                1                     W               WATER SUPPLY OWNER
        EA          437                1                     0               OTHER POLLUTION SOURCE
        EA          437                1                     1               INDUSTRIAL POLLUTION SOURCE
        EA          449                1                     A               PRELIMINARY MOTIONS FILED
        EA          449                1                     B               SUMMARY MOTION FILED
        EA          449                1                     C               ORDER,INJUNCTION,TRO FINAL
        EA          449                1                     D               JUDGEMENT
        EA          449                1                     E               PENALTY
        EA          449                1                     F               CONSENT AGREEMENT SIGNED
        EA          449                1                     G               POST TRIAL MOTIONS FILED
        EA          449                1                     H               NOTICE OF APPEAL
        EA          449                1                     I               CIVIL ACTION
        EA          449                1                     J               STAY PENDING APPEAL
        EA          449                1                     K               APPEAL PENDING
        EA          449                1                     L               APPEAL RE
        EA          449                1                     M               COMPLIAN
        EA          449                1                     N               COMPLAI
        EA          449                1                     O               OTHER
        EA          449                1                     Z               PENDING DELETION
        EA          449                1                     0               OTHER
        EA          449                1                     1               CIVIL ACTION
        EA          449                1                     2               COMPLAINT FILED
        EA          449                1                     3               BRIEFS FILED
        EA          449                1                     4               PRETRIAL HELD
        EA          449                1                     5               HEARING SCHEDULED
        EA          449                1                     6               HEARING HELD
        EA          449                1                     7               ORAL ARGUMENTS HEARD
```

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                                                    MODEL STATE INFORMATION SYSTEM
MSIS030                                             STANDARD PROCESSING SUBSYSTEM

DATE 05/11/77                                              CODE VALUE TABLE                                             PAGE     2

                          DATA ELEMENT
            FILE ID       CATALOGUE NO      DATA ELEMENT LENGTH      DATA ELEMENT VALUE           DATA ELEMENT DESCRIPTION

              EA              449                    1                        8                 INJUCTION REQUESTED
              EA              449                    1                        9                 TRO REQUESTED
```

WBIS030 MODEL STATE INFORMATION
STANDARD PROCESSING SUBSYSTEM

DATE 05/11/77 CODE VALUE TABLE PAGE 1

FILE ID	DATA ELEMENT CATALOGUE NO	DATA ELEMENT LENGTH	DATA ELEMENT VALUE	DATA ELEMENT DESCRIPTION
LB	321	1	C	COMMERCIAL
LB	321	1	D	DAIRY
LB	321	1	F	FEDERAL INSTALLATION
LB	321	1	G	FEDERAL OTHER
LB	321	1	H	HEALTH FACILITY
LB	321	1	I	INDIAN RESERVATION
LB	321	1	L	LOCAL
LB	321	1	O	OTHER
LB	321	1	P	PRIVATE
LB	321	1	S	STATE
LB	321	1	U	UNIVERSITY
LB	321	1	W	PUBLIC WATER SUPPLY
LB	321	1	O	OTHER
LB	321	1	T	INDIAN RESERVATION
LB	820	3	001	NEPHELOMETRIC
LB	820	3	101	ATOMIC ABSORPTION
LB	820	3	103	FLAMELESS ATOMIC ABSORPTION
LB	820	3	105	BRUCINE COLORIMETRIC
LB	820	3	107	ELECTRODE
LB	820	3	109	CADMIUM REDUCTION
LB	820	3	111	COLORIMETRIC,PRELIM DISTILL,
LB	820	3	201	ORGANOCHLORINE PESTICIDES
LB	820	3	203	CHLORINATED PHENOXYHERBICIDES
LB	820	3	301	DPN - CHLORINE RESIDUAL
LB	820	3	303	MEMBRANE FILTER
LB	820	3	305	FERMENTATION TUBE - 10 ML
LB	820	3	307	FERMENTATION TUBE - 100 ML
LB	820	3	401	GROSS ALPHA & BETA, METHOD 302
LB	820	3	403	STRONTIUM-89,90, METHOD 303
LB	820	3	405	TOTAL RADIUM, METHOD 304
LB	820	3	407	RADIUM-226, METHOD 305
LB	820	3	409	TRITIUM, METHOD 306
LB	820	3	411	CESIUM-134, ASTM D-2459
LB	820	3	413	URANIUM, ASTM D-2907
LB	820	3	999	OTHER

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                                        MODEL STATE INFORMATION SYSTEM
MSIS030                                 STANDARD PROCESSING SUBSYSTEM
DATE 05/11/77                                  CODE VALUE TABLE                                        PAGE    1

                     DATA ELEMENT
       FILE ID       CATALOGUE NO     DATA ELEMENT LENGTH     DATA ELEMENT VALUE       DATA ELEMENT DESCRIPTION

         MS              001                   4                    0100               TURBIDITY
         MS              001                   4                    1005               ARSENIC
         MS              001                   4                    1010               BARIUM
         MS              001                   4                    1015               CADMIUM
         MS              001                   4                    1020               CHROMIUM
         MS              001                   4                    1025               FLUORIDE
         MS              001                   4                    1030               LEAD
         MS              001                   4                    1035               MERCURY
         MS              001                   4                    1040               NITRATE (AS N)
         MS              001                   4                    1045               SELENIUM
         MS              001                   4                    1050               SILVER
         MS              001                   4                    1055               ADDL CHEM 1
         MS              001                   4                    1060               ADDL CHEM 2
         MS              001                   4                    2005               ENDRIN
         MS              001                   4                    2010               LINDANE
         MS              001                   4                    2015               METHOXYCHLOR
         MS              001                   4                    2020               TOXAPHENE
         MS              001                   4                    2035               ADDL CHEM 3
         MS              001                   4                    2040               ADDL CHEM 4
         MS              001                   4                    2105               2,4 - D
         MS              001                   4                    2110               2,4,5 - TP SILVEX
         MS              001                   4                    3000               COLIFORM
         MS              001                   4                    4000               GROSS ALPHA PARTICLE ACTIVITY
         MS              001                   4                    4010               COMBINED RADIUM
         MS              001                   4                    4020               RADIUM-226
         MS              001                   4                    4030               RADIUM-228
         MS              001                   4                    4100               GROSS BETA PARTICLE ACTIVITY
         MS              001                   4                    4102               TRITIUM
         MS              001                   4                    4128               23-VANADIUM-48
         MS              001                   4                    4136               26-IRON-59
         MS              001                   4                    4142               27-COBALT-60
         MS              001                   4                    4146               28-NICKEL-63
         MS              001                   4                    4172               38-STRONTIUM-89
         MS              001                   4                    4174               38-STRONTIUM-90
         MS              001                   4                    4176               39-YTTRIUM-90
         MS              001                   4                    4178               39-YTTRIUM-91
         MS              001                   4                    4184               40-ZIRCONIUM-95
         MS              001                   4                    4188               41-NIOBIUM-95
         MS              001                   4                    4200               43-TECHNETIUM-99
         MS              001                   4                    4206               44-RUTHENIUM-103
         MS              001                   4                    4208               44-RUTHENIUM-106
         MS              001                   4                    4220               47-SILVER-110
         MS              001                   4                    4262               53-IODINE-129
         MS              001                   4                    4264               53-IODINE-131
         MS              001                   4                    4270               55-CESIUM-134
         MS              001                   4                    4306               63-EUROPIUM-154
         MS              002                   1                    O                  OTHER
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MSIS030                                   MODEL STATE INFORMATION SYSTEM
                                          STANDARD PROCESSING SUBSYSTEM
DATE 05/11/77                                    CODE VALUE TABLE                                        PAGE    2

                          DATA ELEMENT
              FILE ID     CATALOGUE NO       DATA ELEMENT LENGTH      DATA ELEMENT VALUE          DATA ELEMENT DESCRIPTION

                MS            082                    1                       R                   REACTOR FACILITY
                MS            082                    1                       W                   WASTE STORAGE/REPROCESSING
                MS            082                    1                       O                   OTHER
                MS            149                    2                       AK                  ALASKA
                MS            149                    2                       AL                  ALABAMA
                MS            149                    2                       AR                  ARKANSAS
                MS            149                    2                       AS                  AMERICAN SAMOA
                MS            149                    2                       AZ                  ARIZONA
                MS            149                    2                       CA                  CALIFORNIA
                MS            149                    2                       CO                  COLORADO
                MS            149                    2                       CT                  CONNECTICUT
                MS            149                    2                       DC                  DISTRICT OF COLUMBIA
                MS            149                    2                       DE                  DELAWARE
                MS            149                    2                       FL                  FLORIDA
                MS            149                    2                       GA                  GEORGIA
                MS            149                    2                       GU                  GUAM
                MS            149                    2                       HI                  HAWAII
                MS            149                    2                       IA                  IOWA
                MS            149                    2                       ID                  IDAHO
                MS            149                    2                       IL                  ILLINOIS
                MS            149                    2                       IN                  INDIANA
                MS            149                    2                       KS                  KANSAS
                MS            149                    2                       KY                  KENTUCKY
                MS            149                    2                       LA                  LOUISIANA
                MS            149                    2                       MA                  MASSACHUSETTS
                MS            149                    2                       MD                  MARYLAND
                MS            149                    2                       ME                  MAINE
                MS            149                    2                       MI                  MICHIGAN
                MS            149                    2                       MN                  MINNESOTA
                MS            149                    2                       MO                  MISSOURI
                MS            149                    2                       MS                  MISSISSIPPI
                MS            149                    2                       MT                  MONTANA
                MS            149                    2                       NC                  NORTH CAROLINA
                MS            149                    2                       ND                  NORTH DAKOTA
                MS            149                    2                       NE                  NEBRASKA
                MS            149                    2                       NH                  NEW HAMPSHIRE
                MS            149                    2                       NJ                  NEW JERSEY
                MS            149                    2                       NM                  NEW MEXICO
                MS            149                    2                       NV                  NEVADA
                MS            149                    2                       NY                  NEW YORK
                MS            149                    2                       OH                  OHIO
                MS            149                    2                       OK                  OKLAHOMA
                MS            149                    2                       OR                  OREGON
                MS            149                    2                       PA                  PENNSYLVANIA
                MS            149                    2                       PR                  PUERTO RICO
                MS            149                    2                       RI                  RHODE ISLAND
                MS            149                    2                       SC                  SOUTH CAROLINA
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                                   MODEL STATE INFORMATION SYSTEM
MSIS030                            STANDARD PROCESSING SUBSYSTEM

DATE 05/11/77                             CODE VALUE TABLE                                   PAGE     3

                    DATA ELEMENT
         FILE ID    CATALOGUE NO     DATA ELEMENT LENGTH     DATA ELEMENT VALUE         DATA ELEMENT DESCRIPTION

           MS           149                  2                      SD                  SOUTH DAKOTA
           MS           149                  2                      TN                  TENNESSEE
           MS           149                  2                      TT                  TRUST TERRITORIES
           MS           149                  2                      TX                  TEXAS
           MS           149                  2                      UT                  UTAH
           MS           149                  2                      VA                  VIRGINIA
           MS           149                  2                      VI                  VIRGIN ISLANDS
           MS           149                  2                      VT                  VERMONT
           MS           149                  2                      WA                  WASHINGTON
           MS           149                  2                      WI                  WISCONSIN
           MS           149                  2                      WV                  WEST VIRGINIA
           MS           149                  2                      WY                  WYOMING
           MS           149                  2                      01                  EPA REGION I = BOSTON
           MS           149                  2                      02                  EPA REGION II = NEW YORK
           MS           149                  2                      03                  EPA REGION III = PHILADELPHIA
           MS           149                  2                      04                  EPA REGION IV = ATLANTA
           MS           149                  2                      05                  EPA REGION V = CHICAGO
           MS           149                  2                      06                  EPA REGION VI = DALLAS
           MS           149                  2                      07                  EPA REGION VII = KANSAS CITY
           MS           149                  2                      08                  EPA REGION VIII = DENVER
           MS           149                  2                      09                  EPA REGION IX = SAN FRANCISCO
           MS           149                  2                      10                  EPA REGION X = SEATTLE
           MS           343                  2                      01                  SINGLE SAMPLE MCL
           MS           343                  2                      02                  AVERAGE MCL
           MS           343                  2                      03                  REGULAR SAMPLING
           MS           343                  2                      04                  CHECK (REPEAT) SAMPLING
           MS           343                  2                      05                  STATE NOTIFICATION
           MS           343                  2                      06                  PUBLIC NOTIFICATION
           MS           343                  2                      07                  TREATMENT TECHNIQUES
           MS           343                  2                      08                  V OR E COMPLIANCE SCHEDULE
           MS           343                  2                      09                  RECORD KEEPING
           MS           343                  2                      10                  OPERATIONS REPORT
           MS           454                  2                      01                  LETTER TO PWS FROM STATE WSP
           MS           454                  2                      04                  ADM.HEARING - PWS & STATE WSP
           MS           454                  2                      07                  OTHER STATE ADM.PROCEDURE
           MS           454                  2                      10                  INJUNCTION SOUGHT
           MS           454                  2                      13                  FINE LEVIED ON PWS
           MS           454                  2                      16                  OTHER CIVIL ACTION
           MS           454                  2                      19                  EXPLORE ALT. SOURCES OF WATER
           MS           454                  2                      22                  EXPLORE REGIONAL SYS. DEVELOP
           MS           454                  2                      25                  FINANCIAL AID OBTAINED
           MS           454                  2                      28                  TREATMENT SYSTEM DESIGNED
           MS           454                  2                      31                  TREATMENT SYSTEM APPROVED
           MS           454                  2                      34                  TREATMENT SYSTEM BUILT
           MS           454                  2                      37                  PERIODIC MONITORING REQ'D.
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                                         MODEL STATE INFORMATION SYSTEM
MSIS030                                  STANDARD PROCESSING SUBSYSTEM

DATE 05/11/77                                  CODE VALUE TABLE                                         PAGE     1

                        DATA ELEMENT
          FILE ID       CATALOGUE NO       DATA ELEMENT LENGTH       DATA ELEMENT VALUE          DATA ELEMENT DESCRIPTION

            OM              479                     1                        L                 LABORATORY OWNER
            OM              479                     1                        O                 OPERATOR
            OM              479                     1                        P                 WATER PURVEYOR
            OM              479                     1                        S                 SANITARY ENGINEER
            OM              479                     1                        W                 WATER SUPPLY OWNER
            OM              479                     1                        X                 OTHER
            OM              479                     1                        0                 OPERATOR
```

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MSIB030                                  MODEL STATE INFORMATION SYSTEM
                                         STANDARD PROCESSING SUBSYSTEM
DATE 05/11/77                                   CODE VALUE TABLE                                    PAGE     1

                       DATA ELEMENT
            FILE ID    CATALOGUE NO    DATA ELEMENT LENGTH    DATA ELEMENT VALUE      DATA ELEMENT DESCRIPTION

              PW           159                  3                    001              ADAMS
              PW           159                  3                    003              ALEXANDER
              PW           159                  3                    005              BOND
              PW           159                  3                    007              BOONE
              PW           159                  3                    009              BROWN
              PW           159                  3                    011              BUREAU
              PW           159                  3                    013              CALHOUN
              PW           159                  3                    015              CARROLL
              PW           159                  3                    017              CASS
              PW           159                  3                    019              CHAMPAIGN
              PW           159                  3                    021              CHRISTIAN
              PW           159                  3                    023              CLARK
              PW           159                  3                    025              CLAY
              PW           159                  3                    027              CLINTON
              PW           159                  3                    029              COLES
              PW           159                  3                    031              COOK
              PW           159                  3                    033              CRAWFORD
              PW           159                  3                    035              CUMBERLAND
              PW           159                  3                    037              DE KALB
              PW           159                  3                    039              DE WITT
              PW           159                  3                    041              DOUGLAS
              PW           159                  3                    043              DE PAGE
              PW           159                  3                    045              EDGAR
              PW           159                  3                    047              EDWARDS
              PW           159                  3                    049              EFFINGHAM
              PW           159                  3                    051              FAYETTE
              PW           159                  3                    053              FORD
              PW           159                  3                    055              FRANKLIN
              PW           159                  3                    057              FULTON
              PW           159                  3                    059              GALLATIN
              PW           159                  3                    061              GREENE
              PW           159                  3                    063              GRUNDY
              PW           159                  3                    065              HAMILTON
              PW           159                  3                    067              HANCOCK
              PW           159                  3                    069              HARDIN
              PW           159                  3                    071              HENDERSON
              PW           159                  3                    073              HENRY
              PW           159                  3                    075              IROQUOIS
              PW           159                  3                    077              JACKSON
              PW           159                  3                    079              JASPER
              PW           159                  3                    081              JEFFERSON
              PW           159                  3                    083              JERSEY
              PW           159                  3                    085              JO DAVIESS
              PW           159                  3                    087              JOHNSON
              PW           159                  3                    089              KANE
              PW           159                  3                    091              KANKAKEE
              PW           159                  3                    093              KENDALL
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MSI8030                            STANDARD PROCESSING    SYSTE

DATE 05/11/77                           CODE VALUE TABLE                                        PAGE    2

                   DATA ELEMENT
     FILE ID       CATALOGUE NO     DATA ELEMENT LENGTH     DATA ELEMENT VALUE        DATA ELEMENT DESCRIPTION

       PW              159                  3                     095                 KNOX
       PW              159                  3                     097                 LAKE
       PW              159                  3                     099                 LA SALLE
       PW              159                  3                     101                 LAWRENCE
       PW              159                  3                     103                 LEE
       PW              159                  3                     105                 LIVINGSTON
       PW              159                  3                     107                 LOGAN
       PW              159                  3                     109                 MCDONOUGH
       PW              159                  3                     111                 MCHENRY
       PW              159                  3                     113                 MCLEAN
       PW              159                  3                     115                 MACON
       PW              159                  3                     117                 MACOUPIN
       PW              159                  3                     119                 MADISON
       PW              159                  3                     121                 MARION
       PW              159                  3                     123                 MARSHALL
       PW              159                  3                     125                 MASON
       PW              159                  3                     127                 MASSAC
       PW              159                  3                     129                 MENARD
       PW              159                  3                     131                 MERCER
       PW              159                  3                     133                 MONROE
       PW              159                  3                     135                 MONTGOMERY
       PW              159                  3                     137                 MORGAN
       PW              159                  3                     139                 MOULTRIE
       PW              159                  3                     141                 OGLE
       PW              159                  3                     143                 PEORIA
       PW              159                  3                     145                 PERRY
       PW              159                  3                     147                 PIATT
       PW              159                  3                     149                 PIKE
       PW              159                  3                     151                 POPE
       PW              159                  3                     153                 PULASKI
       PW              159                  3                     155                 PUTNAM
       PW              159                  3                     157                 RANDOLPH
       PW              159                  3                     159                 RICHLAND
       PW              159                  3                     161                 ROCK ISLAND
       PW              159                  3                     163                 ST CLAIR
       PW              159                  3                     165                 SALINE
       PW              159                  3                     167                 SANGAMON
       PW              159                  3                     169                 SCHUYLER
       PW              159                  3                     171                 SCOTT
       PW              159                  3                     173                 SHELBY
       PW              159                  3                     175                 STARK
       PW              159                  3                     177                 STEPHENSON
       PW              159                  3                     179                 TAZEWELL
       PW              159                  3                     181                 UNION
       PW              159                  3                     183                 VERMILLION
       PW              159                  3                     185                 WABASH
       PW              159                  3                     187                 WARREN
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MSI5030                                   MODEL STATE INFORMATION SYSTEM
                                          STANDARD PROCESSING SUBSYSTEM
DATE 05/11/77                                   CODE VALUE TABLE                                          PAGE    3

                     DATA ELEMENT
         FILE ID    CATALOGUE NO     DATA ELEMENT LENGTH     DATA ELEMENT VALUE          DATA ELEMENT DESCRIPTION

           PW           159                  3                      189                  WASHINGTON
           PW           159                  3                      191                  WAYNE
           PW           159                  3                      193                  WHITE
           PW           159                  3                      195                  WHITESIDE
           PW           159                  3                      197                  WILL
           PW           159                  3                      199                  WILLIAMSON
           PW           159                  3                      201                  WINNEBAGO
           PW           159                  3                      203                  WOODFORD
           PW           160                  3                      017                  CANADIAN INDIAN
           PW           160                  3                      018                  CAYUGA
           PW           160                  3                      019                  CAYUGA-SENECA
           PW           160                  3                      020                  CONFEDERATED TRIBES CHEHALIS
           PW           160                  3                      027                  CHICKASAW
           PW           160                  3                      032                  CHOCTAW
           PW           160                  3                      037                  COEUR D'ALENE
           PW           160                  3                      042                  CREE
           PW           160                  3                      043                  CREEK
           PW           160                  3                      044                  CROW
           PW           160                  3                      076                  MIAMI
           PW           160                  3                      078                  MISSOURI
           PW           160                  3                      079                  MISSOURI-OTOE
           PW           160                  3                      091                  OSAGE
           PW           160                  3                      093                  OTTAWA
           PW           160                  3                      097                  PAWNEE
           PW           160                  3                      103                  POTAWATOMIE
           PW           160                  3                      140                  SHAWNEE
           PW           160                  3                      142                  EASTERN SHAWNEE
           PW           160                  3                      171                  WINNEBAGO
           PU           196                  1                      A                    SYSTEM ABANDONED
           PW           196                  1                      D                    DUPLICATE PWS WITH ANOTHER ID
           PW           196                  1                      M                    SYSTEM MERGED/CONSOLIDATED
           PW           196                  1                      O                    OTHER
           PW           196                  1                      P                    SYSTEM PURGED FROM INVENTORY
           PW           196                  1                      R                    PWS REENTERED WITH NEW ID
           PW           196                  1                      S                    SYSTEM DISCONTINUED
           PW           196                  1                      0                    OTHER
           PW           200                  2                      01                   REGION 1  = ROCKFORD
           PW           200                  2                      02                   REGION 2  = AURORA
           PW           200                  2                      03                   REGION 3  = SPRINGFIELD
           PW           200                  2                      04                   REGION 4  = COLLINSVILLE
           PW           200                  2                      05                   REGION 5  = MARION
           PW           200                  2                      3A                   REGION 3A = CHAMPAIGN
           PW           201                  2                      01                   DISTRICT 1
           PW           201                  2                      02                   DISTRICT 2
           PW           201                  2                      03                   DISTRICT 3
           PW           201                  2                      04                   DISTRICT 4
           PW           201                  2                      05                   DISTRICT 5
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MSIS030                                  MODEL STATE INFORMATION SYSTEM
                                         STANDARD PROCESSING SUBSYSTEM
DATE 05/11/77                                  CODE VALUE TABLE                                         PAGE     4

                    DATA ELEMENT
       FILE ID      CATALOGUE NO      DATA ELEMENT LENGTH      DATA ELEMENT VALUE          DATA ELEMENT DESCRIPTION

         PW             201                    2                      06                 DISTRICT 6
         PW             237                    1                      A                  AUTHORITY/COMMISION/DISTRICT
         PW             237                    1                      C                  CITY
         PW             237                    1                      F                  FEDERAL
         PW             237                    1                      I                  INVESTOR
         PW             237                    1                      M                  MUNICIPALITY
         PW             237                    1                      N                  COUNTY
         PW             237                    1                      O                  OTHER
         PW             237                    1                      S                  STATE
         PW             237                    1                      U                  UNKNOWN
         PW             237                    1                      0                  OTHER
         PW             237                    1                      1                  INVESTOR
         PW             246                    1                      E                  EMERGENCY SOURCE
         PW             246                    1                      I                  INTERIM SOURCE
         PW             246                    1                      O                  OTHER
         PW             246                    1                      P                  PERMANENT SOURCE
         PW             246                    1                      R                  RESERVE SOURCE
         PW             246                    1                      S                  SEASONAL SOURCE
         PW             246                    1                      0                  OTHER
         PW             246                    1                      1                  INTERIM SOURCE
         PW             247                    4                      0515               SALT RIVER
         PW             247                    4                      0516               GREEN RIVER
         PW             247                    4                      0517               WABASH RIVER
         PW             247                    4                      0518               EAST FORK WHITE RIVER
         PW             247                    4                      0519               WEST FORK WHITE RIVER
         PW             247                    4                      0520               CUMBERLAND RIVER
         PW             247                    4                      0521               OHIO RIVER MAIN STEM
         PW             247                    4                      0803               MENOMINEE
         PW             247                    4                      0804               CEDAR
         PW             247                    4                      0805               FORD
         PW             247                    4                      0806               ESCANABA
         PW             247                    4                      0807               RAPID
         PW             247                    4                      0808               WHITEFISH
         PW             247                    4                      0809               STURGEON
         PW             247                    4                      0810               FISHDAM
         PW             247                    4                      0811               MANISTIQUE
         PW             247                    4                      0816               BOARDMAN
         PW             247                    4                      0818               BETSIE
         PW             247                    4                      0823               WHITE
         PW             247                    4                      0828               GRAND
         PW             248                    3                      001                0394531 0401228
         PW             248                    3                      003                0370009 0372033
         PW             248                    3                      005                0384401 0390156
         PW             248                    3                      007                0420925 0433011
         PW             248                    3                      009                0395005 0400626
         PW             248                    3                      011                0410052 0423527
         PW             248                    3                      013                0385133 0392412
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MSIS039                                     MODEL STATE INFORMATION SYSTEM
                                            STANDARD PROCESSING SUBSYSTEM
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                                                   CODE VALUE TABLE

                       DATA ELEMENT
          FILE ID      CATALOGUE NO      DATA ELEMENT LENGTH      DATA ELEMENT VALUE          DATA ELEMENT DESCRIPTION

            PW             248                    3                      015                 0415556 0421219
            PW             248                    3                      017                 0395204 0400725
            PW             248                    3                      019                 0395241 0402331
            PW             248                    3                      021                 0392100 0404943
            PW             248                    3                      023                 0391005 0392908
            PW             248                    3                      025                 0383543 0395453
            PW             248                    3                      027                 0382407 0394408
            PW             248                    3                      029                 0392226 0404056
            PW             248                    3                      031                 0412753 0420936
            PW             248                    3                      033                 0385107 0391039
            PW             248                    3                      035                 0391021 0392246
            PW             248                    3                      037                 0413748 0420935
            PW             248                    3                      039                 0400301 0401653
            PW             248                    3                      041                 0393808 0405246
            PW             248                    3                      043                 0413959 0425928
            PW             249                    3                      001                 0905439 0923014
            PW             249                    3                      003                 0891034 0903039
            PW             249                    3                      005                 0891539 0903814
            PW             249                    3                      007                 0884205 0895625
            PW             249                    3                      009                 0903038 0915443
            PW             249                    3                      011                 0890952 0905104
            PW             249                    3                      013                 0902704 0915610
            PW             249                    3                      015                 0894107 0901940
            PW             249                    3                      017                 0895919 0913507
            PW             249                    3                      019                 0875545 0882842
            PW             249                    3                      021                 0890143 0903229
            PW             249                    3                      023                 0873214 0880111
            PW             249                    3                      025                 0881503 0894218
            PW             249                    3                      027                 0890837 0904227
            PW             249                    3                      029                 0875809 0882836
            PW             249                    3                      031                 0873126 0881640
            PW             249                    3                      033                 0873121 0885721
            PW             249                    3                      035                 0880111 0882841
            PW             249                    3                      037                 0883453 0895640
            PW             249                    3                      039                 0883453 0890829
            PW             249                    3                      041                 0875625 0882836
            PW             249                    3                      043                 0875524 0881640
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                                        MODEL STATE INFORMATION SYSTEM
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                  DATA ELEMENT
        FILE ID   CATALOGUE NO    DATA ELEMENT LENGTH    DATA ELEMENT VALUE        DATA ELEMENT DESCRIPTION

          RG          044                  1                     C                  COLOR
          RG          044                  1                     D                  TDS
          RG          044                  1                     F                  FOAMING
          RG          044                  1                     H                  HEALTH
          RG          044                  1                     I                  IRON
          RG          044                  1                     L                  CHLORIDE
          RG          044                  1                     M                  MANGANESE
          RG          044                  1                     O                  ODOR
          RG          044                  1                     P                  PH
          RG          044                  1                     S                  SULFATE
          RG          044                  1                     T                  TASTE
          RG          044                  1                     U                  COPPER
          RG          044                  1                     V                  CORROSIVITY
          RG          044                  1                     Y                  HYDROGEN SULFIDE
          RG          044                  1                     Z                  ZINC
          RG          044                  1                     0                  ODOR
          RG          044                  1                     1                  IRON
          RG          044                  1                     2                  ZINC
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CODE VALUE TABLE

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FILE ID	DATA ELEMENT CATALOGUE NO	DATA ELEMENT LENGTH	DATA ELEMENT VALUE	DATA ELEMENT DESCRIPTION
VE	461	1	A	INTEREST IN V OR E EXPRESSED
VE	461	1	C	APPLICATION FOR V OR E REC'D
VE	461	1	E	STATE PROPOSES TO DENY V OR E
VE	461	1	G	STATE PROPOSES TO GRANT V OR E
VE	461	1	I	HEARING ON PROPOSAL SCHEDULED
VE	461	1	K	HEARING ON PROPOSAL HELD
VE	461	1	M	COMPLIANCE SCHEDULE PRESCRIBED
VE	461	1	O	HEARING ON SCHEDULE OFFERED
VE	461	1	Q	HEARING ON SCHEDULE HELD
VE	461	1	R	ADDITIONAL INFORMATION DESIRED
VE	461	1	S	V OR E GRANTED
VE	461	1	T	V OR E DENIED
VE	461	1	U	STATE SETS MONITORING REQ'M
VE	461	1	V	EPA SETS MONITORING REQ'M
VE	461	1	W	NOTIFICATION GIVEN TO PUBLIC
VE	461	1	X	OTHER
VE	461	1	Y	NOTIFICATION GIVEN TO EPA
VE	461	1	Z	PENDING DELETION
VE	461	1	0	HEARING ON SCHEDULE OFFERED
VE	461	1	1	HEARING ON PROPOSAL SCHEDULED
VE	465	3	020	AERATION
VE	465	3	040	PRECHLORINATION
VE	465	3	060	COAGULATION
VE	465	3	080	SEDIMENTATION
VE	465	3	100	FILTRATION
VE	465	3	120	CORROSION CONTROL
VE	465	3	140	SOFTENING
VE	465	3	160	TASTE AND ODOR CONTROL
VE	465	3	180	IRON REMOVAL
VE	465	3	200	AMMONIATION
VE	465	3	220	FLORIDE ADJUSTMENT
VE	465	3	240	DISINFECTION
VE	466	3	001	LIME COAGULATION
VE	466	3	003	PRECIPITATION
VE	466	3	005	SEQUESTRATION
VE	466	3	007	STRAINING
VE	466	3	009	SCREENING
VE	466	3	011	DESALINATION
VE	466	3	013	REVERSE OSMOSIS
VE	466	3	015	MANGANESE REMOVAL
VE	466	3	017	ACTIVATED CARBON (GRANULAR)
VE	466	3	019	ACTIVATED CARBON (POWDERED)
VE	466	3	021	FLUORIDATION
VE	466	3	023	FLUORIDE REMOVAL
VE	466	3	025	U.V. DISINFECTION
VE	466	3	027	OZONE DISINFECTION
VE	466	3	029	IODINE DISINFECTION

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STANDARD PROCESSING SUBSYSTEM

CODE VALUE TABLE

FILE ID	DATA ELEMENT CATALOGUE NO	DATA ELEMENT LENGTH	DATA ELEMENT VALUE	DATA ELEMENT DESCRIPTION
VE	466	3	031	CHLORINE DISINFECTION
VE	466	3	033	CHLORINE DIOXIDE
VE	466	3	035	BREAKPOINT CHLORINATION
VE	466	3	037	POST-CHLORINATION
VE	466	3	039	SUPER-CHLORINATION
VE	466	3	041	CARBON ABSORPTION
VE	466	3	043	ELECTRODIALYSIS
VE	466	3	045	DISTILLATION
VE	466	3	047	RE-CARBONATION
VE	466	3	049	ION EXCHANGE
VE	466	3	051	FLOCCULATION
VE	466	3	053	PH ADJUSTMENT
VE	466	3	055	CHEMICAL OXIDATION
VE	466	3	057	ABSORBING AGENTS
VE	466	3	998	OTHER
VE	466	3	999	NO TREATMENT REQUIRED
VE	469	2	01	CANNOT COMPLY AFTER TREATMENT
VE	469	2	03	CANNOT AFFORD FACILITY CONST.
VE	469	2	05	FUNDS PENDING
VE	469	2	07	FACILITY CONST. PENDING
VE	469	2	09	UNABLE TO AFFORD TREATMENT
VE	469	2	11	TREATMENT UNNECESSARY
VE	469	2	13	TREATMENT IMPRACTICAL
VE	469	2	99	OTHER
VE	476	1	2	DELETE MILESTONE
VE	476	1	1	FACILITY CONSTRUCTION NOT COMP
VE	476	1	3	NEW WATER SOURCE NOT FOUND

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                                          MODEL STATE INFORMATION SYSTEM
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                              RECORD INFORMATION                                 NAME INFORMATION
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         FILE ID  CATALOGUE NO  TRANSACTION / FILE     TRANSACTION / FILE       MNEMONIC NAME            HISTORY CODE

           EA         430           01      0001          05      05            EA-CASE-ID                   Y
           EA         431           06      0006          12      12            EA-CASE-RE                   Y
           EA         432           21      0018          30      30            EA-CASENAM                   Y
           EA         433           51      0048          06      05            EA-ACT-DAT                   Y
           EA         434           08      0053          01      01            EA-CLOSE                     Y
           EA         435           08      0054          01      01            EA-PLNTYPE                   Y
           EA         436           09      0055          30      30            EA-PLNNAME                   Y
           EA         437           39      0085          01      01            EA-DEFTYPE                   Y
           EA         438           40      0086          30      30            EA-DEFNAME                   Y
           EA         439           08      0116          07      07            EA-ORDERNO                   Y
           EA         440           15      0123          06      05            EA-ORDATE                    Y
           EA         441           21      0128          07      07            EA-PERNO                     Y
           EA         442           28      0135          06      05            EA-PERDATE                   Y
           EA         443           58      0140          07      07            EA-PWS-ID                    Y
           EA         444           65      0147          02      02            EA-STATE                     Y
           EA         445           10      ****          06      05            EA-VIL-DAT                   Y
           EA         446           16      ****          04      04            EA-CON-ID                    Y
           EA         447           08      ****          02      02            EA-VIOL-TP                   Y
           EA         448           08      ****          30      30            EA-ABSTRAC                   Y
           EA         449           57      0559          01      01            EA-LEGALST                   Y
           EA         450           00      0560          00      05            EA-LST-UP                    Y
           EA         451           00      0565          00      02            EA-HISTONE                   Y
           EA         452           10      ****          06      05            EA-TAR-DT                    Y
           EA         453           16      ****          06      05            EA-ATT-DAT                   Y
           EA         454           08      ****          02      02            EA-MIL-COD                   Y
           EA         904           06      ****          02      02            EA-TRAN-CD                   N
           EA         907           08      ****          01      01            EA-CRDT-CD                   N
           EA         911           22      ****          01      01            EA-DEL-CD                    N
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                                          MODEL STATE INFORMATION SYSTEM
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                         RECORD INFORMATION                                        NAME INFORMATION
                                   START POSITION          FIELD LENGTH
          FILE ID   CATALOGUE NO   TRANSACTION / FILE   TRANSACTION / FILE         MNEMONIC NAME            HISTORY CODE

            LB          319            01        0001        05        05          LB-ID                         N
            LB          320            06        0006        01        01          LB-CONTGRP                    N
            LB          321            07        0007        01        01          LB-OW-TYPE                    N
            LB          322            08        0008        30        30          LB-NAME                       N
            LB          323            38        0038        06        05          LB-EXP-DT                     N
            LB          324            00        0043        00        06          LB-REL-REC                    N
            LB          325            00        0049        00        02          LB-METHCNT                    N
            LB          820            07        ****        72        03          LB-METHOD                     N
            LB          914            79        ****        02        02          TRAN-CODE                     N
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                                        MODEL STATE INFORMATION SYSTEM
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                              RECORD INFORMATION                                    NAME INFORMATION
                                   START POSITION          FIELD LENGTH
         FILE ID   CATALOGUE NO   TRANSACTION / FILE    TRANSACTION / FILE         MNEMONIC NAME          HISTORY CODE

           OM          478            01       0001          05       05           OM-ADS-ID                   Y
           OM          479            08       0006          01       01           OM-ADS-TYP                  Y
           UM          480            09       0007          30       30           OM-ADS-NAM                  Y
           OM          481            39       0037          30       30           OM-ADS-STR                  Y
           OM          482            08       0067          30       30           OM-ADS-CTY                  Y
           OM          483            38       0097          02       02           OM-ADS-STA                  Y
           OM          484            40       0099          05       05           OM-ADS-ZIP                  Y
           OM          485            45       0104          03       03           OM-AREA-CD                  Y
           OM          486            48       0107          07       07           OM-PH-NUM                   Y
           OM          487            00       0114          00       05           OM-LST-UPD                  Y
           OM          488            08       0119          07       07           OM-CER-NUM                  Y
           OM          489            15       0126          07       07           OM-PHS-ID                   Y
           OM          490            22       ****          06       01           OM-OP-CLS                   Y
           OM          491            28       0139          06       05           OM-RNL-DT                   Y
           OM          903            06       ****          02       02           OM-TRAN-CD                  N
           OM          908            08       ****          01       01           OM-CRDT-CD                  N
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MSI8030                                  MODEL STATE INFORMATION SYSTEM
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                               RECORD INFORMATION                                  NAME INFORMATION
                                    START POSITION            FIELD LENGTH
      FILE ID   CATALOGUE NO    TRANSACTION / FILE       TRANSACTION / FILE       MNEMONIC NAME             HISTORY CODE

        PH          310             00        0001           00         07         PH-PHS-ID                     Y
        PH          311             00        0008           00         03         PH-CAT-NO                     Y
        PH          312             00        0011           00         05         PH-CUR-UP                     Y
        PH          313             00        0016           00         30         PH-PH-NAME                    Y
        PH          314             00        0046           00         02         PH-S-REGN                     Y
        PH          315             00        0048           00         02         PH-S-DIST                     Y
        PH          316             00        0050           00         05         PH-LST-UP                     Y
        PH          317             00        0055           00         30         PH-OLD-VAL                    Y
        PH          318             00        0085           00         30         PH-NEW-VAL                    Y
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                                     MODEL STATE INFORMATION SYSTEM
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                         RECORD INFORMATION                                     NAME INFORMATION
                                   START POSITION            FIELD LENGTH
        FILE ID   CATALOGUE NO   TRANSACTION / FILE     TRANSACTION / FILE      MNEMONIC NAME               HISTORY CODE

          PS          399            01        0001          07       07         PS-PHS-ID                        N
          PS          400            10        0010          04       04         PS-CONTD                         N
          PS          401            28        0014          03       03         PS-SAMPLID                       N
          PS          402            37        0017          01       01         PS-SAMPLTP                       N
          PS          403            31        0018          06       05         PS-SAMPLDT                       N
          PS          404            38        0023          04       04         PS-SAMPLTM                       N
          PS          405            17        0027          10       10         PS-SAMPLKY                       N
          PS          406            00        0037          01       01         PS-RFCDTYP                       N
          PS          407            14        0049          03       03         PS-AN-METH                       N
          PS          408            42        0052          05       05         PS-LAB-ID                        N
          PS          409            17        0058          04       05         PS-D-ANRSL                       N
          PS          410            21        0063          01       01         PS-D-ANDEC                       N
          PS          411            22        0064          06       05         PS-D-ANDTE                       N
          PS          412            23        0069          04       04         PS-S-HIRSL                       N
          PS          413            27        0073          01       01         PS-S-HIDEC                       N
          PS          414            28        0074          04       04         PS-S-LORSL                       N
          PS          415            32        0078          01       01         PS-S-LODEC                       N
          PS          416            33        0079          04       04         PS-S-MNRSL                       N
          PS          417            37        0083          01       01         PS-S-MNDEC                       N
          PS          418            17        0084          03       03         PS-REQ-SPL                       N
          PS          419            20        0087          03       03         PS-ACT-SPL                       N
          PS          420            49        0090          06       05         PS-PRD-STR                       N
          PS          421            55        0095          06       05         PS-PRD-END                       N
          PS          422            73        0118          01       01         PS-CHK-FED                       N
          PS          423            74        0119          01       01         PS-CHK-STA                       N
          PS          424            75        0120          03       03         PS-CHK-NUM                       N
          PS          425            38        0129          04       04         PS-FED-VIO                       N
          PS          426            42        0133          04       04         PS-STA-VIO                       N
          PS          427            46        0137          03       03         PS-VIO-DUR                       N
          PS          428            78        0140          01       01         PS-NOTIPUB                       N
          PS          429            79        0141          01       01         PS-NOTISTA                       N
          PS          817            08        0008          02       02         PS-TRAN-CD                       N
          PS          818            00        0142          00       01         PS-ERR-IND                       N
          PS          819            00        0057          00       01         PS-LB-OWN                        N
          PS          900            61        0017          01       01         PS-SMPLTP                        N
          PS          901            62        0018          06       05         PS-SMPLDT                        N
          PS          902            68        0052          05       05         PS-LB-ID                         N
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MSI8030                            STANDARD PROCESSING SUBSYSTEM

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                        RECORD INFORMATION                                   NAME INFORMATION
                                  START POSITION          FIELD LENGTH
        FILE ID   CATALOGUE NO   TRANSACTION / FILE    TRANSACTION / FILE     MNEMONIC NAME          HISTORY CODE

          PW          145            01       0001         07       07        PW-ID                       N
          PW          146            10       0008         30       30        PW-OWNA                     Y
          PW          147            40       0038         30       30        PW-PL-STRT                  Y
          PW          148            10       0068         30       30        PW-PL-CITY                  Y
          PW          149            40       0098         02       02        PW-PL-STAT                  Y
          PW          150            42       0100         05       05        PW-PL-ZIP                   Y
          PW          151            10       0105         30       30        PW-MA-NAME                  Y
          PW          152            40       0135         30       30        PW-MA-STRT                  Y
          PW          153            10       0165         30       30        PW-MA-CITY                  Y
          PW          154            40       0195         02       02        PW-MA-STAT                  Y
          PW          155            42       0197         05       05        PW-MA-ZIP                   Y
          PW          156            47       0202         03       03        PW-MA-ARCD                  Y
          PW          157            50       0205         07       07        PW-MA-PNUM                  Y
          PW          158            10       0212         15       15        PW-PL-ACTY                  N
          PW          159            25       0227         03       03        PW-PL-ACNT                  N
          PW          160            28       0230         03       03        PW-PL-REBR                  N
          PW          161            31       0233         01       01        PW-PL-REBI                  N
          PW          162            32       0234         01       01        PW-PL-COMP                  N
          PW          163            33       0235         01       01        PW-PL-RECR                  N
          PW          164            34       0236         01       01        PW-PL-MOHO                  N
          PW          165            35       0237         01       01        PW-PL-INST                  N
          PW          166            36       0238         01       01        PW-PL-SCHL                  N
          PW          167            37       0239         01       01        PW-PL-HOTL                  N
          PW          168            38       0240         01       01        PW-PL-REST                  N
          PW          169            39       0241         01       01        PW-PL-SSTA                  N
          PW          170            40       0242         01       01        PW-PL-CAMP                  N
          PW          171            41       0243         01       01        PW-PL-PIC                   N
          PW          172            42       0244         01       01        PW-PL-LODG                  N
          PW          173            43       0245         01       01        PW-PL-MARI                  N
          PW          174            44       0246         01       01        PW-PL-SKI                   N
          PW          175            45       0247         01       01        PW-PL-BATH                  N
          PW          176            46       0248         01       01        PW-PL-VCTR                  N
          PW          177            47       0249         01       01        PW-PL-HWY                   N
          PW          178            48       0250         01       01        PW-PL-AIR                   N
          PW          179            49       0251         01       01        PW-PL-OTHR                  N
          PW          180            10       0252         07       07        PW-PL-CNUM                  Y
          PW          181            17       0259         01       01        PW-PL-CARR                  Y
          PW          182            18       0260         01       01        PW-PL-TYPE                  N
          PW          183            19       0261         09       09        PW-PL-POPL                  Y
          PW          184            28       0270         07       07        PW-PL-SNUM                  Y
          PW          185            35       0277         07       07        PW-PL-MNUM                  Y
          PW          186            10       0284         10       10        PW-PL-AVPR                  Y
          PW          187            20       0294         10       10        PW-PL-DECA                  N
          PW          188            30       0304         10       10        PW-PL-EMER                  Y
          PW          189            40       0314         10       10        PW-PL-STCA                  Y
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MSIS030                                  MODEL STATE INFORMATION SYSTEM
                                         STANDARD PROCESSING SUBSYSTEM
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                                RECORD INFORMATION                                  NAME INFORMATION
                                  START POSITION           FIELD LENGTH
        FILE ID   CATALOGUE NO   TRANSACTION / FILE     TRANSACTION / FILE          MNEMONIC NAME              HISTORY CODE

          PW          190             50      0320          10       10             PW-PL-MAXP                     Y
          PW          191             10      0330          04       04             PW-PL-REGN                     Y
          PW          192             14      0338          06       05             PW-PL-SURV                     Y
          PW          193             20      0343          02       02             PW-PL-CYCL                     N
          PW          194             22      0345          01       01             PW-PL-ACTV                     N
          PW          195             23      0346          06       05             PW-PL-DDAT                     N
          PW          196             29      0351          01       01             PW-PL-DREA                     N
          PW          197             30      0352          12       12             PW-PL-MANU                     N
          PW          198             10      0364          02       02             PW-S-CODE                      Y
          PW          199             12      0366          01       01             PW-S-REGE                      N
          PW          200             13      0367          02       02             PW-S-REGN                      N
          PW          201             15      0369          02       02             PW-S-DIST                      N
          PW          202             17      0371          01       01             PW-S-BFLG                      Y
          PW          203             18      0372          01       01             PW-S-MONT                      N
          PW          204             19      0373          03       03             PW-S-NSAM                      N
          PW          205             22      0376          04       04             PW-S-SRGN                      N
          PW          206             26      0380          04       04             PW-S-SEND                      N
          PW          207             30      0384          01       01             PW-S-MDCK                      N
          PW          208             31      0385          03       03             PW-S-NSPFQ                     N
          PW          209             34      0388          01       01             PW-S-MCKS                      N
          PW          210             35      0389          02       02             PW-S-CLOR                      N
          PW          211             37      0391          01       01             PW-S-TFLG                      Y
          PW          212             38      0392          02       02             PW-S-TRUN                      N
          PW          213             11      ****          04       04             PW-S-CONID                     Y
          PW          214             15      ****          03       03             PW-S-SPFQ                      Y
          PW          215             10      0422          04       04             PW-S-ORBGN                     N
          PW          216             14      0426          04       04             PW-S-OREND                     N
          PW          217             19      0430          03       03             PW-S-ATEM                      N
          PW          218             22      0433          04       04             PW-S-NITR                      N
          PW          219             26      0437          01       01             PW-S-RFLG                      Y
          PW          220             27      0438          01       01             PW-S-RHUM                      N
          PW          221             28      0439          02       02             PW-S-BETA                      N
          PW          222             30      0441          01       01             PW-S-NUCL                      N
          PW          223             31      0442          01       01             PW-S-FATYI                     N
          PW          224             12      ****          04       04             PW-S-FACON                     N
          PW          225             16      ****          02       02             PW-S-CFREQ                     N
          PW          226             10      0504          02       02             PW-S-GALP                      N
          PW          227             12      0506          02       02             PW-S-RADM                      N
          PW          228             14      0508          01       01             PW-S-NUMSP                     N
          PW          229             18      0509          01       01             PW-S-GWATR                     N
          PW          230             15      0510          01       01             PW-S-RREQ                      N
          PW          231             16      0511          04       04             PW-S-LAST                      Y
          PW          232             20      0515          01       01             PW-S-ENGN                      N
          PW          233             00      0516          00       17             PW-S-RESV                      N
          PW          234             00      0616          00       05             PW-LST-UP                      N
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                              RECORD INFORMATION                                        NAME INFORMATION
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          FILE ID   CATALOGUE NO   TRANSACTION / FILE    TRANSACTION / FILE          MNEMONIC NAME           HISTORY CODE

            PW          235             11      ****        05       05              PW-LA-ID                      N
            PW          236             16      ****        01       01              PW-LA-CFLG                    Y
            PW          237             47      0651        01       01              PW-OW-TYPE                    Y
            PW          238             11      ****        08       08              PW-VE-CTAR                    N
            PW          239             15      ****        05       05              PW-VE-MCL                     N
            PW          240             20      ****        01       01              PW-VE-DEC                     N
            PW          241             21      ****        03       03              PW-VE-AMF                     N
            PW          242             00      0705        00       02              PW-PL-SONM                    N
            PW          243             12      ****        15       15              PW-PL-SONA                    Y
            PW          244             27      ****        01       01              PW-PL-SOCD                    Y
            PW          245             28      ****        02       02              PW-PL-WELL                    Y
            PW          246             30      ****        01       01              PW-PL-AVAL                    Y
            PW          247             31      ****        04       04              PW-PL-BASN                    Y
            PW          248             35      ****        07       07              PW-PL-LATI                    Y
            PW          249             42      ****        07       07              PW-PL-LONG                    Y
            PW          250             49      ****        07       07              PW-PL-ALTD                    Y
            PW          251             56      ****        01       01              PW-PL-AERA                    Y
            PW          252             57      ****        01       01              PW-PL-PREC                    Y
            PW          253             58      ****        01       01              PW-PL-CUAR                    Y
            PW          254             59      ****        01       01              PW-PL-SEDI                    Y
            PW          255             60      ****        01       01              PW-PL-FILT                    Y
            PW          256             61      ****        01       01              PW-PL-CURR                    Y
            PW          257             62      ****        01       01              PW-PL-SOFT                    Y
            PW          258             63      ****        01       01              PW-PL-TAST                    Y
            PW          259             64      ****        01       01              PW-PL-IRON                    Y
            PW          260             65      ****        01       01              PW-PL-AMMO                    Y
            PW          261             66      ****        01       01              PW-PL-FLOR                    Y
            PW          262             67      ****        01       01              PW-PL-DISI                    Y
            PW          263             68      ****        01       01              PW-PL-OTHE                    Y
            PW          264             00      ****        00       03              PW-PL-RESE                    Y
            PW          701             42      0708        01       01              PW-PL-COIN                    N
            PW          702             32      0683        01       01              PW-B-FATY2                    N
            PW          906             08      ****        02       02              PW-TRAN-CD                    N
            PW          910             10      ****        01       01              PW-CRDT-CD                    N
            PW          912             10      ****        01       01              PW-OCCUR1                     N
            PW          913             10      ****        02       02              PW-OCCUR2                     N
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                            RECORD INFORMATION                                   NAME INFORMATION
                                  START POSITION          FIELD LENGTH
          FILE ID   CATALOGUE NO  TRANSACTION / FILE   TRANSACTION / FILE        MNEMONIC NAME            HISTORY CODE

            RG          001           01      0001        04       04            RG-CONID                    N
            RG          002           05      0005        02       02            RG-A-RGLVL                  N
            RG          003           07      0007        11       15            RG-A-CONAM                  N
            RG          004           18      0022        06       05            RG-A-EFFDT                  N
            RG          005           24      0027        03       03            RG-A-M-GRA                  N
            RG          006           27      0030        03       03            RG-A-M-CMR                  N
            RG          007           30      0033        03       03            RG-A-GAORB                  N
            RG          008           33      0036        03       03            RG-A-GAIRB                  N
            RG          009           36      0039        03       03            RG-A-R&FRB                  N
            RG          010           39      0042        03       03            RG-A-R&ANM                  N
            RG          011           42      0045        01       01            RG-A-NUMBP                  N
            RG          012           43      0046        01       01            RG-A-MINFQ                  N
            RG          013           44      0047        02       02            RG-A-INIPD                  N
            RG          014           46      0049        02       02            RG-A-FRACT                  N
            RG          015           48      0051        02       02            RG-A-MINVF                  N
            RG          016           50      0053        01       01            RG-A-ACHBP                  N
            RG          017           51      0054        01       01            RG-A-CNCOB                  N
            RG          019           05      0005        02       02            RG-B-RGLVL                  N
            RG          020           07      0007        10       15            RG-B-CONAM                  N
            RG          021           17      0022        06       05            RG-B-EFFDT                  N
            RG          022           23      0027        02       02            RG-B-ANMCL                  N
            RG          023           25      0029        05       05            RG-B-TRISC                  N
            RG          024           30      0034        03       03            RG-B-STRSC                  N
            RG          025           33      0037        03       03            RG-B-MRENN                  N
            RG          026           36      0040        03       03            RG-B-MRECN                  N
            RG          027           39      0043        03       03            RG-B-SACIC                  N
            RG          028           42      0046        01       01            RG-B-CNCOB                  N
            RG          029           43      0047        01       01            RG-B-MONGD                  N
            RG          030           44      0048        01       01            RG-B-AVCOM                  N
            RG          031           45      0049        06       06            RG-B-MNPOP                  N
            RG          032           51      0055        01       01            RG-B-NNMSP                  N
            RG          033           52      0056        01       01            RG-B-NNMFQ                  N
            RG          034           53      0057        02       02            RG-B-NVMFQ                  N
            RG          035           55      0059        02       02            RG-B-CNIOS                  N
            RG          036           57      0061        02       02            RG-B-CNSTS                  N
            RG          037           59      0063        02       02            RG-B-CTONF                  N
            RG          038           61      0065        02       02            RG-B-CSTMF                  N
            RG          039           63      0067        02       02            RG-B-CVMFQ                  N
            RG          040           65      0069        02       02            RG-B-CTOBP                  N
            RG          042           05      0005        02       02            RG-C-RGLVL                  N
            RG          043           07      0007        11       15            RG-C-CONAM                  N
            RG          044           18      0022        01       01            RG-C-RSNCD                  N
            RG          045           19      0023        06       06            RG-C-MCLUN                  N
            RG          046           25      0029        06       06            RG-C-MCL                    N
            RG          047           31      0035        01       01            RG-C-MCLDC                  N
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FILE ID	CATALOGUE NO	TRANSACTION	/ FILE	TRANSACTION	/ FILE	MNEMONIC NAME	HISTORY CODE
RG	048	32	0036	05	05	RG-C-MCLOW	N
RG	049	37	0041	01	01	RG-C-MCLOD	N
RG	050	38	0042	05	05	RG-C-MCLHI	N
RG	051	43	0047	01	01	RG-C-MCLHD	N
RG	052	44	0048	01	01	RG-C-CKSAM	N
RG	053	45	0049	01	01	RG-C-SEACD	N
RG	054	46	0050	01	01	RG-C-SPECD	N
RG	055	47	0051	02	02	RG-C-HINTM	N
RG	056	49	0053	02	02	RG-C-CHRPD	N
RG	057	51	0055	06	05	RG-C-CFFDT	N
RG	058	57	0060	01	01	RG-C-CGRYR	N
RG	059	58	0061	04	04	RG-C-CGSPF	N
RG	060	62	0065	04	04	RG-C-CGVFQ	N
RG	061	66	0069	02	02	RG-C-CGMNG	N
RG	062	68	0071	01	01	RG-C-CSRYR	N
RG	063	69	0072	04	04	RG-C-CSSPF	N
RG	064	73	0076	04	04	RG-C-CSVFQ	N
RG	065	77	0080	02	02	RG-C-CSMNG	N
RG	066	51	0082	06	05	RG-C-NEFDT	N
RG	067	57	0087	01	01	RG-C-NGRYR	N
RG	068	58	0088	04	04	RG-C-NGSPF	N
RG	069	62	0092	04	04	RG-C-NGVFQ	N
RG	070	66	0096	02	02	RG-C-NGMNG	N
RG	071	68	0098	01	01	RG-C-NSRYR	N
RG	072	69	0099	04	04	RG-C-NSSPF	N
RG	073	73	0103	04	04	RG-C-NSVFQ	N
RG	074	77	0107	02	02	RG-C-NSMNG	N
RG	076	05	0005	02	02	RG-E-RGLVL	N
RG	077	07	0007	01	01	RG-E-TALID	N
RG	078	08	0008	06	05	RG-E-EFFDT	N
RG	079	14	0013	15	15	RG-E-CONAM	N
RG	080	29	0028	06	06	RG-E-ANCON	N
RG	081	35	0034	04	04	RG-E-DETLM	N
RG	082	39	0038	05	01	RG-E-NPPCD	N
RG	084	05	0005	02	02	RG-F-RGLVL	N
RG	085	07	0007	01	01	RG-F-TALID	N
RG	086	08	0008	03	03	RG-F-TRFLO	N
RG	087	11	0011	03	03	RG-F-TRFHI	N
RG	088	14	0014	03	03	RG-F-TRCLO	N
RG	089	17	0017	03	03	RG-F-TRCHI	N
RG	090	20	0020	06	06	RG-F-TRMCL	N
RG	091	26	0026	03	03	RG-F-RRFLO	N
RG	092	29	0029	03	03	RG-F-RRFHI	N
RG	093	32	0032	03	03	RG-F-RRCLO	N
RG	094	35	0035	03	03	RG-F-RRCHI	N

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		START POSITION		FIELD LENGTH			
FILE ID	CATALOGUE NO	TRANSACTION	/ FILE	TRANSACTION	/ FILE	MNEMONIC NAME	HISTORY CODE
RG	096	05	0005	02	02	RG-M-RGLVL	N
RG	097	07	0007	08	15	RG-M-CONAM	N
RG	098	15	0022	06	05	RG-M-EFFDT	N
RG	099	21	0027	02	02	RG-M-MF-BM	N
RG	100	23	0029	02	02	RG-M-MF-MT	N
RG	101	25	0031	02	02	RG-M-MF-PS	N
RG	102	27	0033	02	02	RG-M-MF-MR	N
RG	103	29	0035	02	02	RG-M-MF-MC	N
RG	104	31	0037	02	02	RG-M-FT-BM	N
RG	105	33	0039	02	02	RG-M-FT-MT	N
RG	106	35	0041	02	02	RG-M-FT-PS	N
RG	107	37	0043	02	02	RG-M-FT-MR	N
RG	108	39	0045	02	02	RG-M-FT-MC	N
RG	109	41	0047	02	02	RG-M-FH-BM	N
RG	110	43	0049	02	02	RG-M-FH-MT	N
RG	111	45	0051	02	02	RG-M-FH-PS	N
RG	112	47	0053	02	02	RG-M-FH-MR	N
RG	113	49	0055	02	02	RG-M-FH-MC	N
RG	114	51	0057	01	01	RG-M-ROMAX	N
RG	115	52	0058	01	01	RG-M-ROSPD	N
RG	116	53	0059	01	01	RG-M-CKCDS	N
RG	117	54	0060	01	01	RG-M-CKMNP	N
RG	118	55	0061	02	02	RG-M-CKMCB	N
RG	119	57	0063	02	02	RG-M-C-LEU	N
RG	120	59	0065	02	02	RG-M-C-MXP	N
RG	121	61	0067	02	02	RG-M-C-MCL	N
RG	122	63	0069	02	02	RG-M-C-MXT	N
RG	123	65	0071	06	05	RG-M-NEFDT	N
RG	124	71	0076	01	01	RG-M-NSEAS	N
RG	125	72	0077	01	01	RG-M-NPERD	N
RG	126	73	0078	02	02	RG-M-NSPFQ	N
RG	128	05	0005	02	02	RG-P-RGLVL	N
RG	129	07	0007	01	01	RG-P-TRLID	N
RG	130	08	0008	09	09	RG-P-T-FRM	N
RG	131	17	0017	09	09	RG-P-T-TOP	N
RG	132	26	0026	03	03	RG-P-T-FRQ	N
RG	134	05	0005	02	02	RG-T-RGLVL	N
RG	135	07	0007	09	15	RG-T-CONAM	N
RG	136	16	0022	02	02	RG-T-MOMCL	N
RG	137	18	0024	02	02	RG-T-CNMCL	N
RG	138	20	0026	02	02	RG-T-CNSPL	N
RG	139	22	0028	06	05	RG-T-EFFDT	N
RG	140	28	0033	01	01	RG-T-ALLBR	N
RG	141	29	0034	01	01	RG-T-RPTIN	N
RG	142	30	0035	03	03	RG-T-CSPFQ	N

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                              RECORD INFORMATION
                                    START POSITION                                         NAME INFORMATION
         FILE ID   CATALOGUE NO   TRANSACTION / FILE      FIELD LENGTH
                                                        TRANSACTION / FILE                 MNEMONIC NAME            HISTORY CODE
           RG          143            33       0038          03        03
           RG          144            36       0041          02        02                   RG-T-NSPFO                   N
           RG          914            79       ****          02        02                   RG-T-MRSPL                   N
                                                                                            TRAN-CODE                    N
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                             RECORD INFORMATION                                   NAME INFORMATION
                                  START POSITION          FIELD LENGTH
          FILE ID   CATALOGUE NO  TRANSACTION / FILE    TRANSACTION / FILE        MNEMONIC NAME          HISTORY CODE

            SA          356           01       0001         07      07            SA-PWS-ID                   N
            SA          357           10       0010         04      04            SA-CONID                    N
            SA          358           00       0014         00      03            SA-SAMPLID                  N
            SA          359           00       0017         00      01            SA-SAMPLTP                  N
            SA          360           00       0018         00      05            SA-SAMPLDT                  N
            SA          361           00       0023         00      04            SA-SAMPLTM                  N
            SA          362           17       0027         10      10            SA-SAMPLKY                  N
            SA          363           00       0037         00      01            SA-RECDTYP                  N
            SA          364           00       0038         01      01            SA-PWS-TYP                  N
            SA          365           00       0039         00      09            SA-POP-SRV                  N
            SA          366           00       0048         00      01            SA-SOURCE                   N
            SA          367           14       0049         03      03            SA-AN-METH                  N
            SA          368           00       0052         00      05            SA-LAB-ID                   N
            SA          369           00       0057         00      01            SA-LAB-OWN                  N
            SA          370           00       0058         00      05            SA-D-ANRSL                  N
            SA          371           00       0063         00      01            SA-D-ANDEC                  N
            SA          372           00       0064         00      05            SA-D-ANDTE                  N
            SA          373           00       0069         00      04            SA-S-HIRSL                  N
            SA          374           00       0073         00      01            SA-S-HIDEC                  N
            SA          375           00       0074         00      04            SA-S-LORSL                  N
            SA          376           00       0078         00      01            SA-S-LODEC                  N
            SA          377           00       0079         00      04            SA-S-MNRSL                  N
            SA          378           00       0083         00      01            SA-S-MNDEC                  N
            SA          379           00       0084         00      03            SA-REQ-SPL                  N
            SA          380           00       0087         00      03            SA-ACT-SPL                  N
            SA          381           00       0090         00      05            SA-PRD-STR                  N
            SA          382           00       0095         00      05            SA-PRD-END                  N
            SA          383           00       0100         00      05            SA-RGLRSPL                  N
            SA          384           00       0105         00      05            SA-SAMPLCT                  N
            SA          385           00       0110         00      05            SA-SAMPLDU                  N
            SA          386           00       0115         00      03            SA-AIR-TMP                  N
            SA          387           00       0118         00      01            SA-CHK-FED                  N
            SA          388           00       0119         00      01            SA-CHK-STA                  N
            SA          389           00       0120         00      03            SA-CHK-NUM                  N
            SA          390           00       0123         00      05            SA-VAR MCL                  N
            SA          391           00       0128         00      01            SA-VAR-DEC                  N
            SA          392           00       0129         00      04            SA-FED-VIO                  N
            SA          393           00       0133         00      04            SA-STA-VIO                  N
            SA          394           00       0137         00      03            SA-VIO-DUP                  N
            SA          395           00       0140         00      01            SA-NOTIPUB                  N
            SA          396           00       0141         00      01            SA-NOTTSTA                  N
            SA          397           00       0143         00      01            SA-MCLVIFL                  N
            SA          398           00       0144         00      05            SA-MCLVFVL                  N
            SA          407           00       0144         00      02            SA-REGION                   N
            SA          408           00       0146         00      02            SA-DISTRIC                  N
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                              RECORD INFORMATION                                       NAME INFORMATION
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        FILE ID    CATALOGUE NO   TRANSACTION / FILE       TRANSACTION / FILE          MNEMONIC NAME                HISTORY CODE

          SA          809             00       0199             00        01           SA-MCLVFDC                       N
          SA          810             00       0200             00        05           SA-MCLVSVL                       N
          SA          811             00       0205             00        01           SA-MCLVSDC                       N
          SA          812             00       0206             00        05           SA-MCLVSSD                       N
          SA          813             00       0211             00        01           SA-FL-FUFC                       N
          SA          814             00       0212             00        01           SA-FL-SUFC                       N
          SA          815             00       0213             00        01           SA-F-BSC                         N
          SA          816             00       0214             00        01           SA-S-BSC                         N
          SA          817             08       ***.             02        02           SA-TRAN-CD                       N
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                                                      MODEL STATE INFORMATION SYSTEM
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                                   START POSITION              FIELD LENGTH
         FILE ID    CATALOGUE NO   TRANSACTION / FILE       TRANSACTION / FILE              MNEMONIC NAME               HISTORY CODE

           BH           301            00       0001            00        02                 BH-FILE-ID                      N
           BH           302            00       0003            00        05                 BH-REC-ID                       N
           BH           303            00       0008            00        03                 BH-CAT-NO                       N
           BH           304            00       0011            00        05                 BH-CUR-UP                       N
           BH           305            00       0016            00        05                 BH-LST-UP                       N
           BH           306            00       0021            00        30                 BH-OLD-VAL                      N
           BH           307            00       0051            00        30                 BH-NEW-VAL                      N
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          FILE ID   CATALOGUE NO    TRANSACTION / FILE          TRANSACTION / FILE       MNEMONIC NAME             HISTORY CODE

            VE          455             01       0001             05        05            VE-ID                       Y
            VE          456             16       0006             05        05            VE-ID-REF                   Y
            VE          457             08       0011             07        07            VE-PMS-ID                   Y
            VE          458             15       0018             01        01            VE-TYPE                     Y
            VE          459             21       0019             06        05            VE-EFF-DT                   Y
            VE          460             27       0024             06        05            VE-EXP-DT                   Y
            VE          461             35       0029             01        01            VE-STATUS                   Y
            VE          462             36       0030             04        04            VE-CON-ID                   Y
            VE          463             40       0034             05        05            VE-MOD-MCL                  Y
            VE          464             45       0039             01        01            VE-MOD-DEC                  Y
            VE          465             46       0040             03        03            VE-TREAT                    Y
            VE          466             49       0043             03        03            VE-ALT-TRT                  Y
            VE          467             52       0046             03        03            VE-MOD-FRE                  Y
            VE          468             08       ****             30        30            VE-ABSTRAC                  Y
            VE          469             33       0529             02        02            VE-REASON                   Y
            VE          470             00       0531             00        05            VE-LST-UP                   Y
            VE          471             00       0536             00        02            VE-MISTONE                  Y
            VE          472             16       ****             02        02            VE-REPEAT                   Y
            VE          473             08       ****             06        05            VE-TAR-DT                   Y
            VE          474             16       ****             06        05            VE-ATT-DT                   Y
            VE          475             14       ****             02        02            VE-MIL-COD                  Y
            VE          476             22       ****             01        01            VE-DEL-CD                   Y
            VE          477             16       ****             30        30            VE-MIL-ABB                  Y
            VE          905             06       ****             02        02            VE-TRAN-CD                  N
            VE          909             08       ****             01        01            VE-CRDT-CD                  N
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VI	326	08	0001	07	07	VI-PWS-ID	Y
VI	327	00	0008	00	30	VI-PWS-NAM	Y
VI	328	00	0038	00	01	VI-PWS-TYP	Y
VI	329	00	0039	00	09	VI-POPULAT	Y
VI	330	15	0048	02	02	VI-REG-LVL	Y
VI	331	17	0050	04	04	VI-CONT-ID	Y
VI	332	00	0054	00	01	VI-SRC-CD	Y
VI	333	21	0055	05	05	VI-LAB-ID	Y
VI	334	00	0060	00	30	VI-LAB-NAM	Y
VI	335	26	0090	06	05	VI-SPLDATE	Y
VI	336	32	0095	04	04	VI-SPLREQD	Y
VI	337	36	0099	04	04	VI-SPLTAKN	Y
VI	338	40	0103	03	03	VI-AN-METH	Y
VI	339	43	0106	05	05	VI-AN-RESL	Y
VI	340	48	0111	01	01	VI-AN-DEC	Y
VI	341	49	0112	06	05	VI-ANDATE	Y
VI	342	55	0117	06	05	VI-SAMPLCT	Y
VI	343	08	0122	02	02	VI-VIOL-TP	Y
VI	344	10	0124	06	05	VI-VIOL-DT	Y
VI	345	16	0129	05	05	VI-MCLVIOL	Y
VI	346	21	0134	01	01	VI-MCLDEC	Y
VI	347	22	0135	03	03	VI-SPLVIOL	Y
VI	348	25	0138	04	04	VI-NUMSPVI	Y
VI	349	29	0142	02	02	VI-VIOLDUR	Y
VI	350	31	0144	01	01	VI-NOTIPUB	Y
VI	351	32	0145	01	01	VI-NOTISTA	Y
VI	352	00	0146	00	02	VI-REGION	Y
VI	353	00	0148	00	02	VI-DISTRIC	Y
VI	354	33	0150	01	01	VI-SPLTYPE	Y
VI	355	34	0151	10	10	VI-SPLKEY	Y
VI	800	44	0161	06	05	VI-DT-RPT	Y
VI	801	50	0166	02	02	VI-LST-RPT	Y
VI	802	00	0168	00	01	VI-LAB-OWN	Y
VI	803	01	0169	05	05	VI-VIOL-ID	Y
VI	804	00	0174	00	05	VI-LSTUPDT	Y
VI	805	52	0179	25	25	VI-REMARKS	Y
VI	806	00	0204	00	05	VI-MCLVSSD	Y
VI	915	06	****	02	02	VI-TRAN-CD	N
VI	916	08	****	01	01	VI-CRDT-CD	N